Can ECOWAS Regional Reserve Project improve the management of food crises in West Africa?

Case study report for the ASiST study 'Which role for food reserve in improving food security in developing countries?'

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1. INTRODUCTION

1.1. What is the Regional Reserve Project?

The Regional Reserve Project (now RR Project) is a project developed by the Economic Community of Western African States (ECOWAS) with the aim of improving the management of food crises in the region. The RR project encompasses three components: building a Regional Food Security Reserve (now RR), increasing the level of national PS and improving of the cooperation between national PS. The RR will be made of grains (millets-sorghum, maize, rice, enriched cereals) and "gari" (milled cassava) and used to back national tools of ECOWAS Member States when they are facing a food crisis. The RR project is not implemented yet but the framework is ready and the institutions are in place. The first purchases of grain are currently on-going.

Fig. 1. ECOWAS countries

Source: Wikipedia

1.2. The RR Project in historical perspective

The idea to create a regional food reserve is born following the 2008 crisis. However, its deep roots probably have to be found some years before in the past, more precisely in 2005 when all Sahel countries faced a major crisis due to the bad harvest of millet and sorghum (drought + locust attack). At that time, PS had a very bad fame: since the liberalization of grain marketing at the end of the 1980s', rules have been established to restrict their size and control their use: the *Stocks Nationaux de Sécurité* (SNS) were co-managed with the donors (double signature): only targeted transfers were allowed (not interventions to stabilize prices), only in emergency situation (qualified as such by Early Warning Systems) and only to food insecure households.

However, something unexpected occurred after the 2005 crisis: a revival of PS. The three Sahel countries (Burkina Faso, Mali, Niger) decided to build a second PS directly managed by the government. Mali also created more than 700 decentralized PS managed by the 700 municipality of the country. Some elements of the RR Project rationale emerged at that time: the wish for more PS, the wish for more independence vis-à-vis the international community and the subsidiarity principle.

Then, came the 2008 crisis. This time, the crisis came from international markets in the form of a sharp increase in the price of imported rice. Moreover, shortages occurred on international markets resulting in importers of the different West African countries facing difficulties to find rice to buy. This resulted in a strong lack of confidence in international markets. And here is probably the main source of the idea that some kinds of reserves are necessary to manage import delays or delays in mobilizing international aid.

Another consequence of the 2008 crisis is that many West African countries implemented export bans with the aim of mitigating price increases on their domestic market. These measures were not really effective (they were circumnavigated most of the time, see Staatz et al.), but demonstrated the lack of solidarity between countries of West Africa. And here is probably the source of the idea that a solution may be found in mutualizing part of the public stocks. As we will see later on, this idea was concretized through two different initiatives: the networking of national PS (RESOGEST) and the building of a regional reserve[1].

1.3. The RR Project's policy background and the doctrine of the 'three lines of defense'

The RR project is an additional component to the current of policies aiming to manage food crises: regional and national trade policies and national and local storage policies. The RR project encompasses not only creating a new reserve (at the regional level) but also increasing the level of national public stocks.

Regional and national trade policies

Since January 2015, ECOWAS is a custom union. Before this date, a custom union already existed in West Africa (WAEMU) but it was involving only the French-speaking countries of the region.

[1] However, there is a paradox here because in 2008, as all countries have been hurt at the same time by the international markets crisis, mutualized means would not have helped so much.

Since 2015 the common external tariff (CET) also applied to Nigeria, Ghana and the other English-speaking countries.

What is of crucial importance from a food security perspective is the level of the tariff applied to rice imports. The fixation of ECOWAS rice CET gave raise to lively debates between the countries that used to tax heavily rice imports in order to boost local production (especially Nigeria) and countries that used to apply a low tariff in order to protect consumers (WAEMU CET was fixed at 10%). Finally ECOWAS CET for rice was also fixed at 10%. These taxes are perceived by national government. In addition, taxes are perceived by ECOWAS (they account for 2.5% of the value of rice imports).

However, in practice, taxes on rice imports import are much higher: each country applies a VAT on rice and, as these taxes are in fact only paid by the imported rice, they play exactly the same role as a tariff on rice imports. The difference being that the level of this tariff is fixed by national governments whereas the CET is fixed at the ECOWAS level. In practice, for rice, the VAT rate is usually between 15% and 35% depending on the country.

National and local storage policies

Local stocks or "cereal banks" are collective stocks managed at the local level (villages or group of villages) by communities. Therefore, strictly speaking, these stocks are not public stocks except in Mali where they are managed by municipalities (each of the 700 municipalities of the country has its own "cereal bank"). These local stocks seek to improve food security in the community. They exist mainly in the three Sahel countries (Burkina Faso, Mali, Niger). A rough estimation is that in each of these three countries around 1000 cereal banks are operating, each of them managing around 15 tons of grains. In the other countries of the region, cereal banks also exist but their number is rather small.

The narrative of cereal banks is that they contribute to stabilizing prices and reducing traders' excessive margins and speculation. However, in practice, they manage rather small quantities and their selling prices is usually close to the market price (otherwise they would not cover their costs, their working capital would vanish and they would be likely to collapse). Therefore if they are not able to stabilize price or to provide sales at subsidized prices, what is the role of cereal banks? It seems that they provide two kinds of value added. The first one is "psychological": whatever experts think about the ability of so small cereal banks to provide a response to food crises, the fact is that when a cereal bank is around people feel more secure. This feeling of security does not only provide some kind of psychological well-being: it is also likely to influence behaviors: when people feel more secure, they are less likely to panic when prices raises. The second value added by cereal banks is allowing poor households purchasing small quantities. Usually, in rural areas, grain transactions are made by bags (contrary to towns where retailers offer small quantities). Therefore, as most cereal banks (not all) accept to sell small quantities, they give an improved access to food to households who would have face difficulties to find the money to buy a bag[2].

[2] I am grateful to Roger Blein (Bureau Issala) for drawing my attention on this second value added of cereal banks.

National PS. In the region, only Sahel countries (Burkina Faso, Mali and Niger) and Nigeria have significant PS. Some coastal countries do not have any PS (Côte d'Ivoire, Guinée Bissau, Senegal) while others have a very small one (10,000 to 15,000 t in Benin and Togo). PS in Sahel countries are clearly higher although their level is quite low if compared with consumption needs. For instance the PS level of Mali in March 2011 accounted for less than 1% of national consumption (around 3 days of consumption). Since 2005, each Sahel country has two physical stocks: the *Stock National de Sécurité* (SNS) created at the end of the 1980s which is co-managed with the donors and an 'intervention stock' created after the 2005 crisis and managed by the country government alone. The SNS can be used only following an alert of the early warning system (EWS) and the agreement of both the government and the donors group (double signature). It is used exclusively for providing food transfers (not for price stabilization). Note that the size of the SNS is structurally below its target level (35,000 tons for Burkina Faso and Mali; 100,000 tons for Niger). The intervention PS can be used by the government exactly as he wants (for stabilizing prices or providing transfers), although due to the low quantity stored, any attempt to act on prices is unlikely to be effective. Last but not least, Nigeria has probably the biggest stock of the region but its level is unknown (as such Nigeria is for West Africa what China is for the World market)[3].

Table 1. Public storage capacities and national PS in ECOWAS countries

COUNTRIES	Public storage capacities	Level of PS (March 2011)		
		Total	SNS*	SIE
BENIN	18 080	n.a.		
BURKINA FASO	98 100	38 000	28 000 [35 000]	10 000
CABO VERDE	46 390			
CÔTE D'IVOIRE	69 796	0		
GAMBIA	372 500			
GHANA	80 218			
GUINEE	116 000			
GUINEE BISSAU	12 280	0		
LIBERIA	17 400			
MALI	136 150	37 000	17 000 [35 000]	20 000
NIGER	154 700	62 000	32 000 [100 000]	30 000
NIGERIA	1 346 000	n.a.		
SENEGAL	87 340	0		
SIERRA LEONE	28 300			
TOGO	92 500	n.a.		
TOTAL	2,675,754	137,000	77,000	60,000

Sources: CSAO (2012) for public storage facilities, UEMOA (2011) for the levels of PS in UEMOA countries.

*The figure into brackets indicates the target level of SNS

[3] As we will see, in the feasibility study of the reserve, the assumption has been made that the size of this stock is around 150,000 tons, although some experts thinks that it may be much higher (between 300,000 and 400,000 tons). But the truth is that nobody knows. That's why the Nigeria case study is so important.

Note also that, although the level of national stocks is low, public storage capacities are quite important (part of them is rented to traders). This may render less difficult any strategy of increasing national PS (as we will see, this strategy is part of the RR project) and offer opportunities for the future RR.

Following the 2005 crisis, a network of the national PS agencies of the region has been created by the CILSS: the RESOGEST. Its objectives are: i) developing technical support between the PS agencies (the ones of the three Sahel countries have much more experience and capacities in this area) ii) and promoting loans of grain between PS agencies in order to mutualize the risk (the decision has been made later on that 5% of the reserve of each SNS should be available for PS of other countries of the region but the conditions to get these 5% still need to be clarified)[4].

The doctrine of the three lines of defense

The RR project is backed by a doctrine based on the principle of subsidiarity. This doctrine is usually referred to as the "three lines of defense". The principles of subsidiarity means that in case of crisis, local stocks should be used first and then relied by national stocks themselves backed by regional stocks.

The RR project not only seeks to add a third level of stock (at the regional level) but also to increase significantly the level of national PS and to improve the interaction between national PS (by strengthening the RESOGEST) and the articulation between the different level of stocks (local, national and regional)[5].

Note that the doctrine of the three lines of defense is only on storage policies: it does not really encompass the articulation with trade policies (we will come back to this later on).

1.4. Scope and methodology of the study

As the RR project is a new-born (the first grain purchases to build the RR are still on-going), it is difficult to draw lessons from its experience. However, two reasons justify reflexing on the RR Project. First, it is a very innovative tool both in its modalities (the RR is a regional tool at the service of national policies) and in its objective (apart from its food security objective, the RR Project has several political objectives such as increasing the region food sovereignty and the solidarity between ECOWAS Member States). Second, to some extent, the RR project may be a

[4] The problem is that the PS agencies are not the ones who decide on the use of the stock they manage (this decision is made by National Committees for food security).

[5] For instance, procurement of national PS can generate interesting opportunities of sales for cereal banks (of surplus regions). However, sales or free distribution implemented by national PS may be very damaging for cereal banks (of deficit areas) by generating a decrease in local prices that can prevent cereal banks to sell at remunerative prices. A solution to this problem would be to develop contracts between national PS and cereal banks (what would require stimulating the development of networks of cereal banks, otherwise, the transaction costs would be too high). For instance, when implementing sales at fair prices (usually around 40% below market prices), national PS could rely on cereal banks either by purchasing them grains (at the current market price) or by selling them grains at subsidized prices, allowing them by this way to sell below market prices. The Burkina Faso report (of this study) provides more details on the ways to articulate local stocks and national PS.

source of inspiration for other regions of the World (the ECOWAS RR Project has been presented as a pilot during the G20 2011 negotiations on managing agricultural price instability).

The RR Project is not operational for now but the infrastructures, the rules and the institutions are already in place, meaning that it's possible reflexing about the RR Project framework. More precisely, two approaches are possible:

- Evaluating the building process of the RR (setting-up of infrastructures, institutional design, rules and procedures, constitution of the physical and financial reserves etc.) and more generally the implementation process of the RR Project. Many difficulties arose in this process and the development of the RR has been delayed by 3 years. A specific study has been commissioned to analyze the sources of these difficulties and propose solution to overcome them.
- Discussing the relevance of the RR Project for improving the management of food crises in West-Africa. Developing this second approach is precisely the aim of the present report.

We will begin (section 2) by discussing the coherence of the RR Project (the adequacy of its infrastructures, rules and funding strategy with its objectives) before discussing its adequacy with the main characteristics of the dynamics of food crises in West Africa (section 3). More specifically, we will identify the main types of food crises faced by the region during the last years and try to imagine what may have been the effect of the RR Project in improving the management of these crises. By "improving" we will refer to three criteria related to the objectives of the RR Project: reducing food insecurity, improving the food sovereignty of the countries and the region and increasing the solidarity between the countries of the region. We will then conclude on the potential benefits and challenges of the RR Project.

2. DISCUSSING THE INTERNAL COHERENCE OF THE RR PROJECT

In this chapter we will present the RR project and discuss its internal coherence (adequacy of its infrastructures, rules and financing to its objectives). The objectives themselves will not be discussed (they express the sovereignty of West-African States) but their relevance regarding the past experience of managing food crises in West Africa will be discussed in the next chapter. But let's begin by presenting the policy background of the RR project.

2.1. Objectives of the RR Project

The general objective of the RR project is "to effectively respond to food crises alongside State governments and stakeholders whilst contributing to the implementation of ECOWAP/CAADP with a regional food security and sovereignty perspective" (ECOWAS 2012, p. 34). Its specific objectives are expressed as follows (ECOWAS 2012):

"SO1. : The Regional Food Security Reserve complements the work carried out by the Member States and provides quick and diversified food and nutritional aid, based on the specific needs of the various communities hit by cyclical shocks, through regional safety tools that combine food and financial resources;

SO2. : The Regional Food Security Reserve expresses regional solidarity with regard to Member States and populations affected by cyclical food crises, though transparent, equitable and predictable mechanisms. It enhances local, national and regional capacities in crisis management and allows international solidarity to streamline its support by working together with local, national and regional stakeholders as part of an approach based on subsidiarity.

SO3. : The Regional Food Security Reserve contributes to food sovereignty and to the region's political, economic and commercial integration, by developing synergies with programs that target growth in agricultural production, market facilitation and regulation, promotion of social safety net, and risk prevention and management."

The words used clearly show that, as far as *food security* is concerned, the RR project is characterized by i) its focus on managing food crises, not treating chronic malnutrition ("cyclical shocks", "cyclical food crises") ii) its choice of providing transfers, not stabilizing prices, as a mean to manage food crises ("regional safety tools that combine food and financial resources"). These two choices (excluding price stabilization; excluding treatment of chronic malnutrition) were difficult (lively debates occurred until an agreement was found)[6]. In the usual typology of food security PS, the RR would therefore be classified as an 'emergency reserve' (see table 2 below).

Table 2. The ECOWAS RR is an emergency reserve

Objective Timeframe	Stabilize prices	Provide transfers to poor households
Interventions in periods of crisis only	*Stabilization PS*	*Emergency reserves* **ECOWAS RR**
Permanent interventions		*Safety net PS*

Source: The typology of PS is adapted from OECD (2014)

A careful reading of the specific objectives quoted above shows that the RR project aims to improve the management of food crisis both *vis-à-vis international aid* and vis-à-vis *national policies* (in both cases to complement them not substitute them). Moreover, the targeted improvement is not only related to *food security objectives*, buy also to *political objectives*: strengthening the region food sovereignty and the solidarity among Member States, while respecting a subsidiarity principle based of four scales (local, national, regional, international). The objectives of the RR Project are summarized in table 3 below.

[6] Note that the objective of creating a second regional reserve whose aim would be stabilizing grain prices is mentioned in ECOWAS storage policy documents but for now nothing has been done in that direction. Note also that the objective of addressing chronic malnutrition is not really addressed by national institutions (except maybe in Ghana) but in some cases by external organizations (in Mali a World bank-funded project, in Niger international organizations and NGOs).

Table 3. Objectives of the RR Project

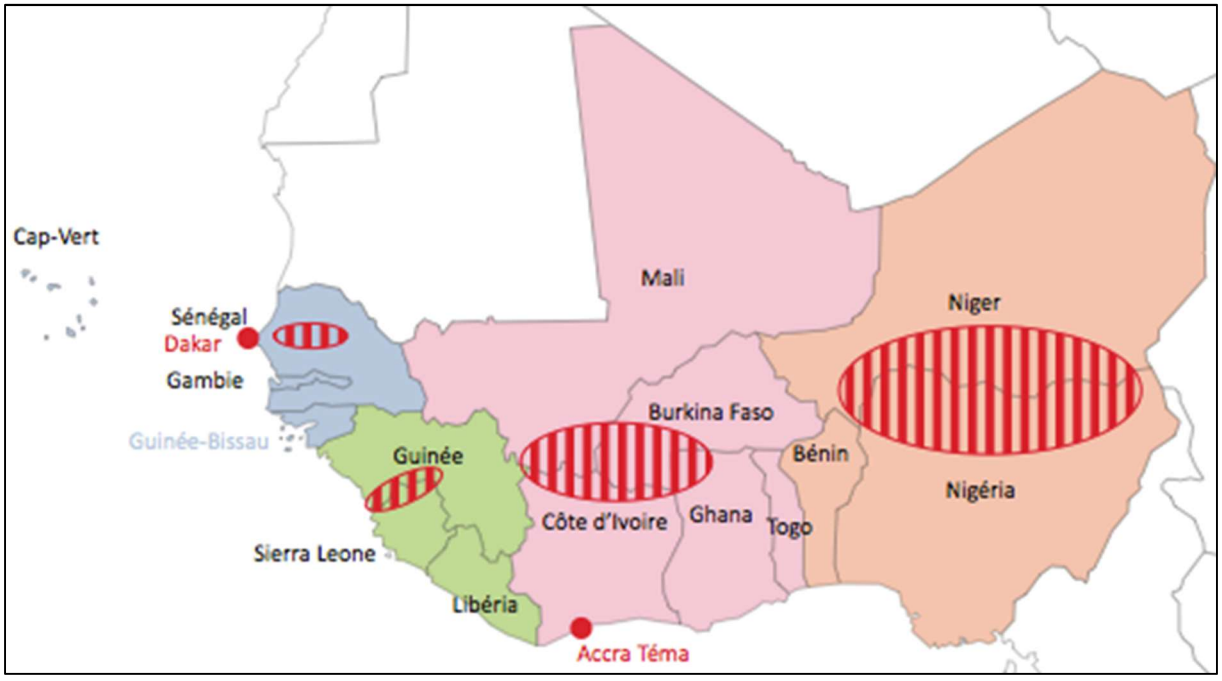
	Political objectives	Food security objectives
Vis-à-vis international aid	**Food sovereignty of ECOWAS member States**	**Improving FS by complementing international aid**
Vis-à-vis national policies	**Solidarity between ECOWAS member States**	**Improving FS by fostering and complementing national policies**

2.2. Infrastructures

Storage facilities

The idea is to use existing storage facilities (hold by national PS agencies). The location of warehouses was off course a very sensitive subject. The principles have been "covering all ECOWAS Members" but at the same time "prioritizing fast access to aid for vulnerable Sahel populations, due to the increasing frequency of major crises in this part of the region". The location of the physical stocks was also based on their proximity to major production areas and "the availability of storage facilities as well as the existence of competent institutions with proven experience in managing a food security reserve" (ECOWAS 2012, p. 49). These institutions are the national PS agencies: NFRA (Nigeria), OPVN (Niger), SONAGESS (Burkina Faso), OPAM (Mali), NAFCO (Ghana) and CSA (Senegal). Four storage sites were selected: "Northern Nigeria / Niger (Eastern subregion); south Mali, Burkina Faso, northern Ghana (Central subregion) Senegal (Atlantic West subregion); Guinea / Liberia / Sierra Leone (Gulf Atlantic subregion), see figure 2 below. Two sites have access to the ports of Tema and Dakar.

Fig. 2. Location of RR storage sites



Source: ECOWAS (2012)

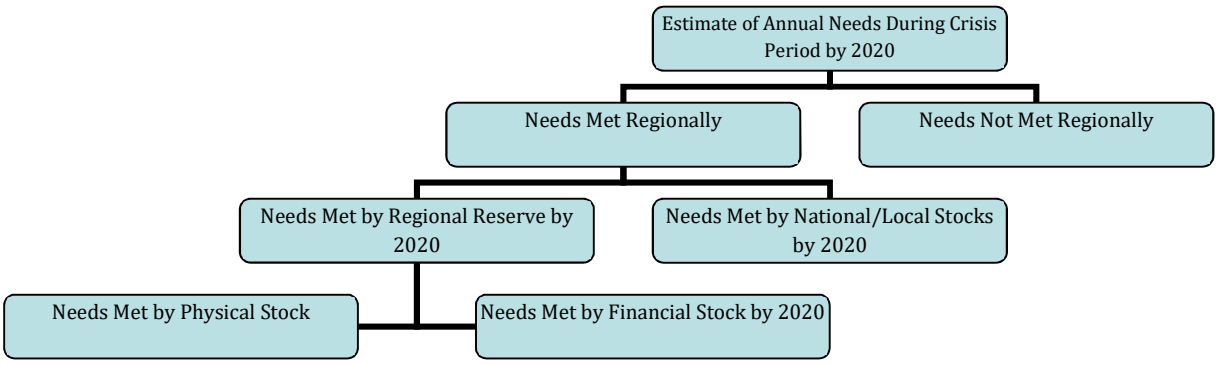
The quantities to be stored on the different sites are correlated with expected needs. The Eastern and Central subregions represent 96% of the physical Regional Reserve, "taking into consideration the magnitude of the needs of landlocked Sahelian countries." (ECOWAS, 2012).

Stocks

The composition of the physical component of the reserve is based on "the major food systems in the region, which correspond to the major production areas, together with the suitability of the produce for storage". Finally, the ECOWAS Commission recommended "starting with a fairly limited range of foodstuffs: cereals (millet, sorghum, maize, rice) and tubers (gari). The proportions of each cereal and the place of gari will vary according to storage site. The introduction of nutritional products (enriched flour) is recommended from the first stage" (ECOWAS 2012).

The size of the RR (and the required increase in the size of national PS) has been calibrated by using the method presented on figure 3 below.

Fig. 3. Determining the size of the RR



Source: ECOWAS (2012)

The analysis was based on 'estimates of annual needs during crisis' provided by a retrospective analysis of the food needs of the populations affected by a crisis since 2000 (the analysis has been made in 2012). Only the shock that created the most needs in each country over the past twelve years has been used and the figures were corrected to take into account the demographic growth (UN projected population data for 2020, were used). This approach is consistent with the focus of the RR on managing crises (not dealing with chronic malnutrition).

The second step was determining the share of the needs that should be "met regionally". This share has been determined by the necessity to manage "the delays in mobilizing international aid (financial resources and aid in kind)", These delays have been estimated to be from 1.5 to 2 months for coastal countries and from 3 to 4 months for landlocked countries (ECOWAS, 2012).

It has therefore been decided that the region should be able to cover needs corresponding to 1.5 months for coastal countries and 3 months for landlocked countries[7].

The third step has been allocating the needs that should be met regionally between the RR and national PS? In the name of a principle of subsidiarity, , it was been decided that "the Regional Reserve will meet 33% of the needs that should be met regionally, "the remaining 67% being directly backed up by national stocks."

This procedure allowed estimating the required size of the RR (411,554 tons) and national PS (841,083 tons). Given the current size of national PS (estimated to 227,000 tons[8]), the required increase in national PS has been estimated to 614,083 tons (see table A.1 in annex for more details).

The last step has been defining the weight of the physical and financial components of the RR. "In order to reduce the inherent constraints and costs of the physical storage of food" and because "experience in this area show that nowadays financial stock can be converted into foodstuffs *almost* immediately" the choice as been made that "one third of the Regional Reserve remains in the form of a physical stock, with the other two thirds consisting of financial stock", with "some flexibility in the one-third/two-third distribution". This method gave a RR for the equivalent of 411,000 tons by 2020, portioned as follows: physical stock = 140,000 tons and financial stock = equivalent to 271,000 tons.

It has been planned to build progressively the RR and to increase national stocks in a period of 8 years beginning in 2013 (see table 4 below). However, all the process has been delayed: the increase in national PS did not occur, the financial reserve does not exist and the first purchases for the physical reserve are just beginning now (mid-2016).

Table 4: Eight-year plan for building the Regional Reserve and increasing national PS (Tons)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Regional Reserve	**0**	**176,380**	**176,380**	**176,380**	**176,380**	**293,967**	**293,967**	**293,967**	**411,554**
Physical Reserve	0	60,000	60,000	60,000	60,000	100,000	100,000	100,000	140,000
Financial Reserve	0	116,380	116,380	116,380	116,380	193,967	193,967	193,967	271,554
National Stocks	**227,000**	**360,464**	**360,464**	**360,464**	**360,464**	**600,774**	**600,774**	**600,774**	**841,083**

Source: ECOWAS (2012)

The composition of the physical component of the reserve will initially be the following (RAAF/PASANAO, 2005): millet 25%, sorghum 24%, maize 26%, gari (milled cassava) 14%, rice 7% and enriched flour 5%. The composition of the RR by storage location is given in table A.2 in annex.

[7] Taking the upper bound of the ranges (2 months and 4 months) would have led to a reserve close to 600,000 tons (instead of 400,000) *cf.* ECOWAS 2012, graph 2 p. 42.

[8] According to ECOWAS (2012): data extracted from UEMOA (2011): 77,000 tons, to which Nigeria's stock is added: 150,000 tons.

2.3. Rules and decision-making procedures

Rules for procuring grains

The general principle is prioritizing stock supplies using local products. The reasons given are related to several specific objectives of ECOWAP mentioning food sovereignty and the wish to reduce dependence on imports (ECOWAS 2012, p. 55). However, cost may be an additional argument as the price of rice (the main imported grain) is about 50% higher than the price of locally-produced millet, sorghum and maize. Moreover, "considering the size of the reserve (60,000 tons initially, 140,000 by 2020), its supply is largely within the scope of the regional production capacity and market". As procuring grains on the local market may generate upward pressures on prices, "the reserve will purchase from the main production areas with surpluses during the post-harvest period".

Two procedures will be used: direct purchases to producers' organizations (POs) for specific volumes and public bids open to POs traders and processors. The idea is "establishing a regularly updated list of agreed suppliers". POs, traders and processors will be accredited by the bodies in charge of making product purchases and managing the stocks on behalf of the Regional Reserve according to "specific criteria of capacity and professionalism". Public bids will indicate "needs by specifying product types, characteristics, qualities, specification of lots, purchase methods, time and place of collection (particularly production areas with surpluses or clusters of processing units), delivery locations with an indication of the guaranteed minimum price at the start of the year, as well as the payment terms for suppliers."

Rules for using the RR

Each ECOWAS Member State can ask for using the RR for free (in the name of regional solidarity) up a certain amount, providing that this Member State is facing a food crisis. This amount (now called the country 'quota') has been calculated following the methodology used to calibrate the size of the RR. The annual needs of the country in case of crisis have been estimated (in 2012) by taking the % of population affected by the major crisis experienced by this country since 2000, by multiplying this % to the estimated population for 2020 and by applying the WFP norm (needs = 15 kg per head per month). Then, it has been assumed that 3 months of these annual needs should be met regionally for landlocked countries and 1.5 months for coastal countries (the estimated delays in mobilizing international aid).

As we already mentioned it, it has been considered 33% of the needs to be met regionally should be met by the RR and 67% by national PS. However, the figure of 33% is only an average as the "principle of solidarity […] calls for the Regional Reserve to provide more support to those countries most exposed to risks of shocks that affect consumption, and particularly those states which lack the sufficient financial or physical resources to reduce the risks or mitigate the impact of these shocks." A typology of countries was therefore elaborated depending on whether they are coastal or landlocked and LDCs or non-LDCs. For landlocked LDCs (Burkina Faso, Mali, Niger), 40% of the needs are covered by the country quota, whereas for countries landlocked or LDC this percentage is 20% and only 10% for coastal non-LDCs (Côte d'Ivoire, Ghana, Nigeria) (ECOWAS 2012, table 5 p. 40)

The resulting country quotas are provided in table 5 below.

Table 5. Country quotas

	Country quotas (tons)	Country quotas (% of the RR size)
Benin	2074	0,5%
Burkina Faso	71766	17,4%
Cape Verde	324	0,1%
Côte d'Ivoire	2205	0,5%
Gambia	3632	0,9%
Ghana	2729	0,7%
Guinea	2298	0,6%
Guinea-Bissau	650	0,2%
Liberia	3022	0,7%
Mali	85023	20,7%
Niger	211829	51,5%
Nigeria	18348	4,5%
Senegal	5039	1,2%
Sierra Leone	1292	0,3%
Togo	1322	0,3%
ECOWAS	411554	100,0%

Source : our calculus based on ECOWAS (2012). See table A1 in annex for the detailed calculus.

Note that countries can get their quota from the RR only if they are facing a food crisis. What happens when the RR agency receives a query from (one or several) governments of ECOWAS Member States? The assessment and decision are informed by vulnerability analyzes, ideally conducted within the framework of the *Cadre Harmonisé Bonifié* (CHB). The CHB framework is the methodology developed by the CILSS and adopted by the region for monitoring food insecurity (theoretically it allows comparing the food security level of different countries). However, this kind of food security assessment is not available for all countries (some of them do not have an early warning system, EWS). That is the reason why the RR project considers that "upgrading of information systems and the widespread application of CHB is required as soon as possible" (ECOWAS, 2012). Then, the mobilization of the reserve is triggered by a decision of the Management Committee of the RR.

If resources are available in the RR, countries can ask more than their quotas but in this case, they have to pay. Note that the RR first satisfies the demand expressed by the countries within their quotas before considering sales or reimbursable loans to governments, international humanitarian organizations, NGOs or POs (ECOWAS 2012, p. 31).

The food received by governments should be used for sales at fair prices or targeted free distribution. The financial resources received should be used to finance food vouchers or cash transfers but also to trigger the use of national PS (in West Africa, national PS can be used only if there is a fund to replenish the stock from the quantity released).

Institutional framework: the reserve's governance bodies

After analyzing different scenarios, the choice has been made to establish a specific body dedicated to the management of the reserve but inserted into ECOWAP (ECOWAP is ECOWAS agricultural policy).

2.4. Funding strategy

Cost of the RR project

The cost for the constitution of the RR (initial allocations of physical and financial capital) *and its maintenance* (technical management of the physical and financial reserves) are shown on table 6 below. More detailed data are provided in table A.3 in annex. The cost of building and governing the reserve is estimated to be $263 million over eight years, meaning an average of $33 million/year. These costs vary widely from year to year because of the phased increase of the physical and financial capital." (ECOWAS 2012)[9].

The cost of increasing the level of national PS from their current level (estimated to 227,000 tons) to 841,000 tons has been estimated to be around $3 million over eight years[10].

Table 6: Cost of the RR project (in 1,000 US$)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total
Constitution of the RR	92	4	2	4	63	6	3	69	243
Physical Reserve	31	5	4	5	24	9	6	31	115
Financial Reserve	61	-2	-2	-2	39	-3	-3	38	129
Maintenance of the RR	3	2	2	2	2	3	3	2	20
Cost of regional solidarity interventions of RR (75% mobilized each year)	67	67	67	67	110	110	110	152	747
Cost of regional solidarity interventions of RR (100% mobilized each year)	89	89	89	89	146	146	146	203	996
Increase of national PS	0	453	453	453	410	410	410	368	2 959
Total Cost (if 75% mobilized each year)	161	526	524	526	586	529	526	591	3 970
Total Cost (if 100% mobilized each year)	183	548	547	548	622	565	562	642	4 219

Source: adapted from ECOWAS (2012), p. 95 and 100.

The cost associated with RR interventions (reconstitution of the physical and financial capital after they have been mobilized to help resolve food crises) at RR maturity (from the eighth year), is estimated to be equal to $152 million per year (if the RR mobilized only 75% of its financial and physical reserves) and to $202.7 million dollars per year (if it mobilized 100%)[11].

[9] See ECOWAS (2012), pp. 86-91 for more details on the way these costs have been estimated.
[10] See ECOWAS (2012), pp. 98-100 for more details on the way these costs have been estimated.
[11] See ECOWAS (2012), pp. 91-95 for more details on the way these costs have been estimated.

This means that over the 8-years initial period of building of the RR and increase of national PS, the total cost is likely to be between $3.97 billion and $4.21 billion. Then, the cost of the RR project (interventions of the RR + maintenance) will be between $154 and 205 million/year depending if 75% or 100% of the RR are mobilized every year in the name of regional solidarity (i.e. without any matching contribution from the recipient country or another institution).

Funding of the RR Project

The proposed financing structure to cover the constitution and maintenance cost of the RR is shown on table 7 below. Basically the idea is that 2/3 of this cost will be covered by regional resources and 1/3 by the TPFs. The region contribution is supposed to be made by countries (in the form grains) and RECs (ECOWAS and WAEMU). However, until now only the TPFs provided their contribution (the on-going purchases of the first tons of grain are funded by the EU). The EU committed itself to provide 60 million euros for the RR (within the 11th FED). In a current EU project (56 million euros), 38 million euros are provided to support the RR, among which 20 million euros are devoted to grain purchases[12]. With a price of 400 euro / ton (delivered in public warehouses), these 20 million euros are equivalent to 50 000 tons of grain.

Table 7: Proposed financing structure for the constitution and maintenance cost of the RR

Thousand $	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total Years 1 to 8
Coasts set-up, maintenance and governance of the total reserve	94 807,00	6 168,00	4 429,00	6 168,00	65 930,00	8 713,00	5 742,00	71 299,00	263 257,00
State contributions (grains)	15 000,00				12 000,00			15 000,00	42 000,00
ECOWAS/WAEMU Contributions	20 000,00	15 000,00	15 000,00	15 000,00	15 000,00	15 000,00	15 000,00	15 000,00	125 000,00
Technical and Financial Partners (TFPs) contributions	12 000,00	12 000,00	12 000,00	12 000,00	12 000,00	12 000,00	12 000,00	12 000,00	96 000,00
Annual balance (resources-usage)	- 47 807,00	20 832,00	22 571,00	20 832,00	- 26 930,00	18 287,00	21 258,00	- 29 299,00	- 257,00
Contributions to funding :									
a. % Région + countries	74%	56%	56%	56%	69%	56%	56%	71%	63%
b. % TFPs	26%	44%	44%	44%	31%	44%	44%	29%	37%

Source : ECOWAS (2012), p. 98.

The financing structure proposed to cover the cost of RR interventions and the increase in national PS is given by table 8 below. Again the idea is that the majority of the funding should stem from the region (almost ¾ of the cost). In order to do this, ECOWAS should create "a predictable, secure and supportive financial mechanism". The proposal mechanism is a new tax on imports. This tax would be called "Zero Hunger tax" and its rate would be 0.5% of the value of all imports (except maybe food imports). It would be collected in the same way as the already perceived CET. However, for now, the Zero Hunger tax has not been implemented (nor alternative measures such as taxing flight tickets or phone communications).

[12] In addition to the 38 million euros devoted to supporting the RR, 18 million euros have been provided for improving information systems, especially early warning system (EWS) that are in charge to produce data on the state of country food insecurity by using the Cadre Harmonisé Bonifié (CHB). This improvement of EWS is necessary in order to allow comparing the food security level of different countries and thereby making a fair decision in case several countries compete to use the RR.

Table 8: Proposed financing structure to cover the costs of RR interventions + the increase in national PS

Years	1	2	3	4	5	6	7	8	8-years total
Cost of intervention by the total reserve (75% mobilized each year) (thousands of dollars)	66 515,00	66 515,00	66 515,00	66 515,00	109 658,00	109 658,00	109 658,00	152 004,00	747 038,00
Contributionby "Zero Hunger" (0,5%)	-	390 000,00	390 000,00	390 000,00	390 000,00	390 000,00	390 000,00	390 000,00	2 730 000,00
Total regional resources (thousands of dollars)	-	390 000,00	390 000,00	390 000,00	390 000,00	390 000,00	390 000,00	390 000,00	2 730 000,00
Contribution by G20 partners and et other partners (limited to one-third of regional resources in years 2 to 8) thousands of $)	66 515,00	130 000,00	130 000,00	130 000,00	130 000,00	130 000,00	130 000,00	130 000,00	976 515,00
Total resources thousands of $)	66 515,00	520 000,00	520 000,00	520 000,00	520 000,00	520 000,00	520 000,00	520 000,00	3 706 515,00
Allocation to national food reserve strategies (national and local stocks) (thousands of dollars)	-	453 485,00	453 485,00	453 485,00	410 342,00	410 342,00	410 342,00	367 996,00	2 959 477,00
Percentage of resources allocated:									
a. to the Régiona Reserve (%)	100%	13%	13%	13%	21%	21%	21%	29%	20%
b. to the national food reserve strategy (%)	0%	87%	87%	87%	79%	79%	79%	71%	80%

Source : ECOWAS (2012), p. 100

2.5. Internal coherence of the RR project

We have seen the objectives of the RR project are:

- Improving the management of food crises in West Africa
- Promoting the food sovereignty of the region and Member States
- Increasing the solidarity between Member States

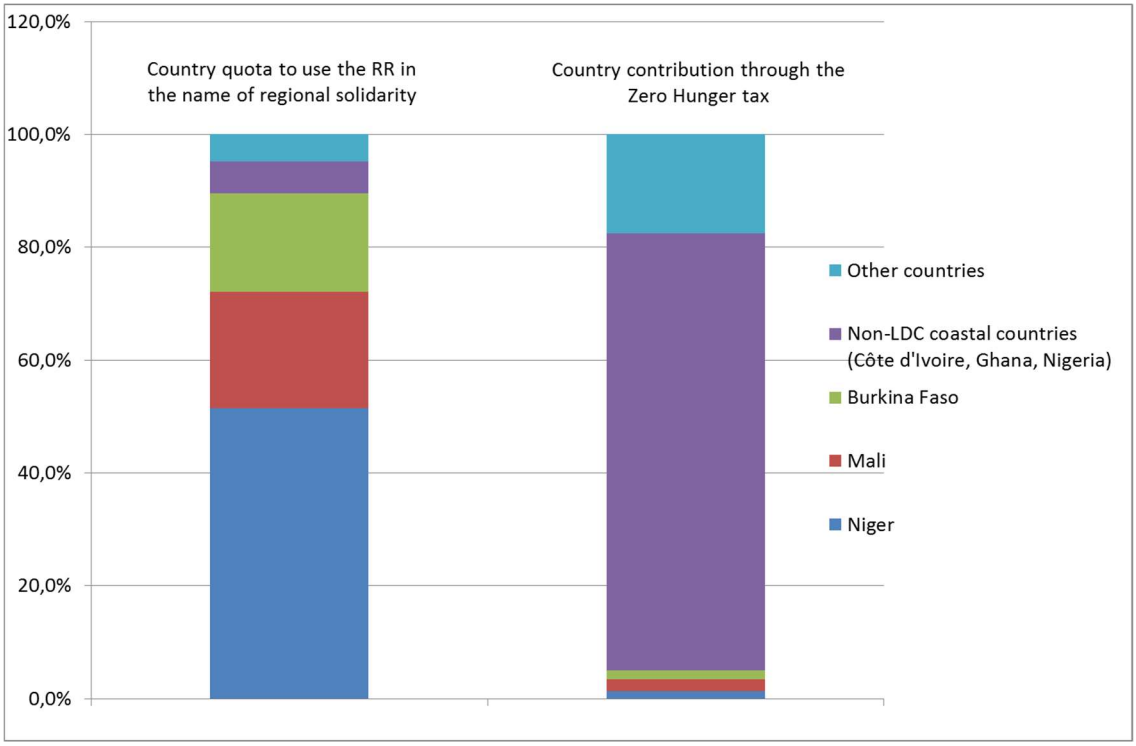
Are the proposed infrastructures, rules and procedures and funding mechanisms coherent with these objectives, taking into account the already existing tools (policy background)? Let us discus this point objective by objective.

Improving the management of food crises in West Africa. Based on the assumption that the delays in mobilizing international aid are a major problem in managing food crisis in West Africa (we will see in the next chapter that this assumption is highly justified given the experience of past food crises), the RR project aims to build the means for the region to manage food crises during 3 months for Sahel landlocked countries and 1.5 months for costal countries. Taking into account the current low level of national PS, it planned to create a regional reserve and to increase national PS. The RR will be made mainly by the staples most consumed by the poors (millet, sorghum, maize and gari), the storage sites will be located near the main spots of food crises and the indicator chosen to allocate the RR (based on the *Cadre Harmonisé Bonifié*) seems relevant as it allows comparing the level of food insecurity of different countries. The content of the RR project seems therefore to be coherent with its objective of improving the management of food crises, providing that the delays in mobilizing international aid is an important part of the problem (what seems to be true as we will see in the next chapter) and that the means provided in the form of increased national PS and rights to use the RR are correctly used by national governments. The main concerns are therefore not on coherence but on implementation: until now the RR is not in place, national PS have not been increased and the *Cadre Harmonisé Bonifié* is not used by all the countries of the region.

Promoting the food sovereignty of the region and Member States. At first glance, it seems that the contribution of the RR project to improving the sovereignty of the region is rather limited: its ambition is not to substitute for international aid but only to manage the crises during the delays for mobilizing international aid. Moreover, in the proposed financing structure, the TFPs play an important role, although the main part of the funding is supposed to stem for the regional resources. We will see in the next chapter that things are in fact more complex. On the other side, the RR project fully respects the sovereignty of the Member States (following the subsidiarity principle): during the next eight years, the majority of the funds is supposed to be used for increasing national PS. Moreover, the RR will not be used for interventions decided at the regional level: its aim is only to increase the means of national governments when their country is affected by a food crisis. The RR project also provide secondary benefits to food sovereignty by promoting i) the use of local staples when managing food crises (millet, sorghum, maize, milled cassava also called *gari*), thereby respecting consumer habits and preferences and ii) the procurement on the local market (including direct purchases to producer organizations).

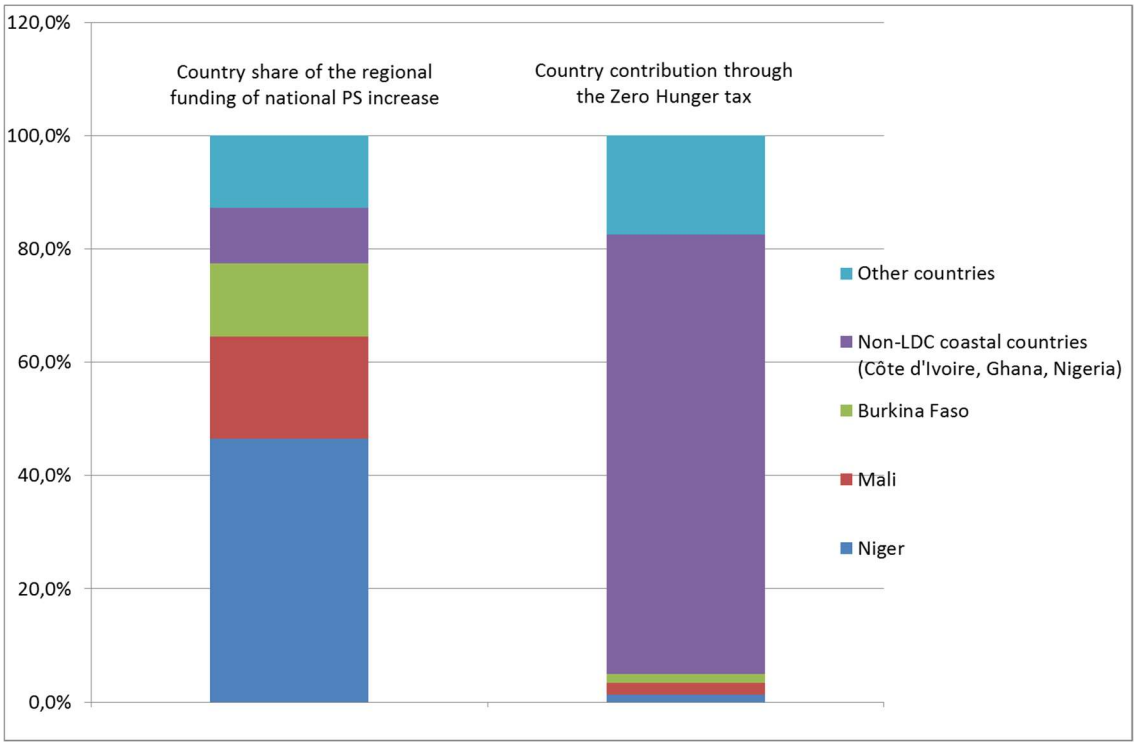
Increasing the solidarity between Member States. By nature the RR is based on the solidarity of the countries of the region **with the countries hit by food crises**. This form of solidarity is implemented through the 'mutualization' of the RR (each country contribute; only those in crisis benefit: the right to use the reserve is triggered by country food insecurity indicators based on the *Cadre Harmonisé Bonifié*). But the RR Project also encompasses two other forms of solidarity. The first one is the solidarity **with the countries vulnerable to food crises**, as both the planned increase in national PS (funded by regional solidarity) and the quantity each country can get from the reserve for free (in the name of regional solidarity) both depend on its vulnerability to food crises. As presented above, the vulnerability has been estimated based on i) the percentage of population hit during the main shock recorded since 2000 and ii) the delay in mobilizing international food aid (1.5 months for coastal countries and 3 months for landlocked countries). The third form of solidarity is with **poor and landlocked countries,** as these countries have a higher percentage of their needs covered (40% for LDC and landlocked countries, 20% for LDC or landlocked countries, 10% for coastal non-LDC countries). Moreover, as the major part of the cost of the RR Project (use of the RR and increase in national PS) is supposed to be funded through Zero Hunger tax on country extra-ECOWAS total imports, non-LDC coastal countries (Côte d'Ivoire, Ghana and Nigeria) will be the main contributors. This three forms of solidarity result in concentrating the solidarity on Sahel countries (and among them on Niger), as these countries are the most often hit by food crisis, the most vulnerable to food crises and are all landlocked and LDC countries. The magnitude of the joint effect of the two last forms of solidarity can be visualized on figures 4 and 5 below.

Fig. 4. Solidarity regarding the right to use the RR in the name of regional solidarity



Source: our calculus based on ECOWAS (2012), see table A.1 in annex for details

Fig. 5. Solidarity regarding the funding by the region of the increase in national PS



Source: our calculus based on ECOWAS (2012), see table A.1 in annex for details

But, off course, internal coherence is not all. We also have to check whether the RR project provides an adequate response to the dynamics of food crises in West Africa.

3. DISCUSSING THE ADEQUACY OF THE RR PROJECT WITH THE DYNAMICS OF FOOD CRISES IN WEST AFRICA

In this chapter, we will go beyond internal coherence by questioning whether the RR project is adequate, given the specific characteristics of food crises in West Africa. We will begin by analyzing the drivers and mechanisms of food crisis in West African, thereby identifying the three main crisis scenarios that may occur (and have occurred) in West Africa. We will then consider an example for each crisis scenario (a recent crisis) and try to imagine what might have been the contribution of the RR project to improving, food sovereignty, solidarity and food security.

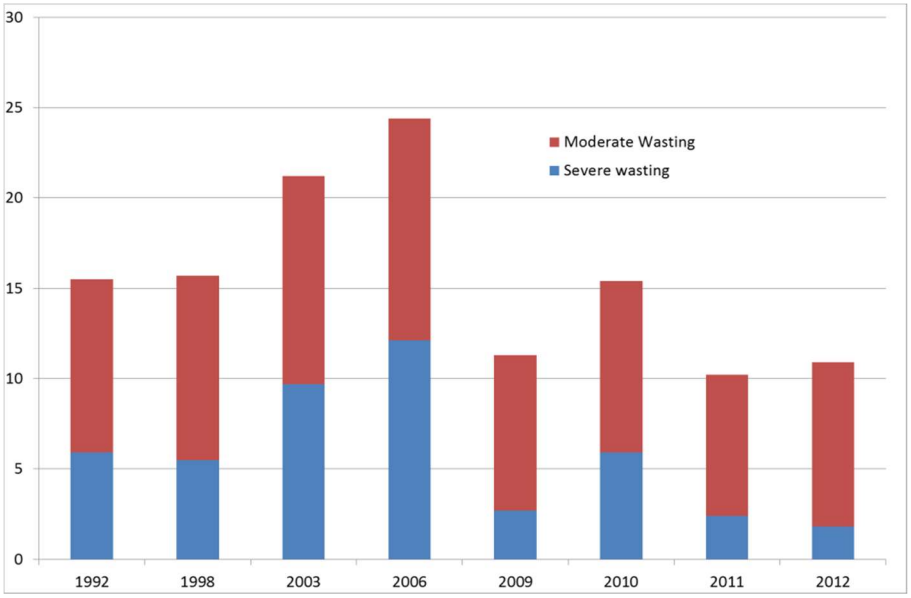
As already said in the introduction, we will analyze the potential contribution the RR Project at its full maturity level, i.e. with i) increased national PS (840,000 tons instead of 227,000 tons) and ii) the RR made of a physical stock of 140,000 tons and a financial stock equivalent to 271,000 tons. In order to acknowledge the fact that the RR Project may be only partially implemented because of financing problems, we will consider alternative scenarios where i) the RR is built without any increase in the level of national PS and ii) the RR is undersized.

3.1. The economics of food crises in West Africa

Food crises and malnutrition

Malnutrition is a chronic problem in West Africa, especially in Sahel countries whose malnutrition rates are among the highest in the world (see table A.4 in annex). These nutritional problems (measured by insufficient weight for height –wasting- or insufficient height for age –stunting- are not only related to food consumption issues but also to health problems (e.g. diarrheas, malaria). In addition to chronic malnutrition, when West-African countries (especially Sahel countries) face food crises, malnutrition rates increase sharply (see figure 6 below for the example of Burkina Faso).

Figure 6. Dynamics of wasting in Burkina Faso



Source: UNICEF-WHO-World Bank

As can be seen on this graph, in Burkina Faso, the prevalence of children under 5 wasting is between 10% and 15% in normal years. When a crisis occurs (as was the case in the Sahel in 2002 and 2005), this rate jumps above 20% the following year (it almost reached 25% after the 2005 crisis). Note also that the prevalence of severe wasting jumps as well with crises: its level in normal time is between 2% and 6%but in periods of crisis it can jump above 10%. The most probable is that children falling into severe wasting with crises were children suffering from moderated wasting in normal times. For the case of the 2005 crisis, this means that the crisis resulted in shifting 10% of the households from normal weight to height to moderate wasting and in shifting 7% of the households from moderate to severe wasting.

Food crises are therefore very damaging for food security. Moreover, their frequency is high: since 2000, five food crises have been registered in Sahel countries: 2002-2003, 2005, 2008, 2010 (for Niger only) and 2012. The choice of the RR project to focus on managing food crises is therefore fully justified. In order to understand what can be the contribution of this project to better managing food crises, we have to understand the drivers and mechanisms of food crisis in West Africa.

The mechanisms of food crises

The two drivers of food crisis. Food crisis occur when the access to food is sharply reduced for a significant share of the population. This reduction in access to food may in some occasion stem from a lack of availability of food in a specific area but, most of the time, it comes from a lack of economic access to food (Sen 1981). This lack of economic access to food may be provoked by a *collapse in household livelihoods* and/or a *sharp increase in the price of foods, especially staples.* Staples are the products that provide the cheapest calories (usually grains, roots or tubers). In West Africa, the main staples consumed are millet, sorghum, maize, rice, cassava and yams: they provide the major part of the caloric intake and account for a high share of households expenditures (see table 9 below).

Table 9. In Mali, grain provides most of the calories in the diet and accounts for a significant share of household expenditures (for all social classes).

	Proportion of grain in dietary calories	Proportion of grain in household food expenditures	Proportion of grain in household total expenditures
Average for rural households	86.0%	51.1%	34.9%
Average for the poorest 20% of rural households	88.6%	57.6%	44.3%
Average for the richest 20% of rural households	82.0%	44.1%	26.5%
Average for urban households	73.1%	31.9%	18.4%
Average for the poorest 20% of urban households	78.6%	38.5%	27.3%
Average for the richest 20% of urban households	68.0%	27.4%	13.6%

Source: Bocoum (2011)

When the prices of these staples increase, households may react by reducing their consumption of staples (with the risk of deficiencies in calories) but also, in order to maintain their calories consumption level, by reducing their consumption of other foods (but with the risk of provoking deficiencies in micronutrients) or their health expenditures (what may affect their nutritional status).

Household livelihoods may collapse for many different reasons. Shocks affecting at the same time a high number of households may stem from natural disasters (earthquakes, droughts, floods, cyclones, etc.), macroeconomic shocks or political events (civil wars, social troubles etc.). In West Africa, the main shocks affecting household livelihoods are clearly related to droughts (which hit mainly Sahel countries) although other type of shocks also played a role such as locust attacks, Ebola outbreak, exchange rate movements (like the devaluation by 50% of the FCFA in 1994) or political troubles (civil war in Côte d'Ivoire, jihadists movements in Mali and northern Nigeria)[13].

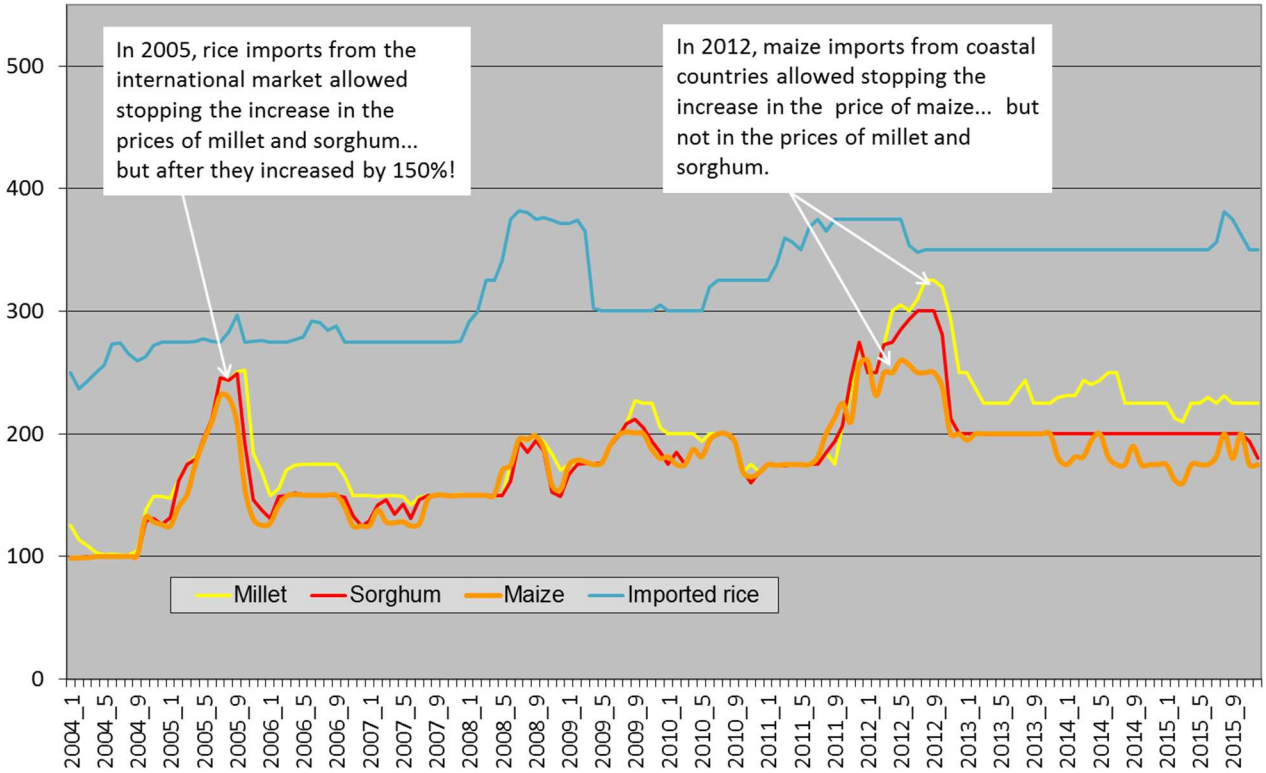
Droughts usually lead to reducing the livelihoods of farmers (surplus farmer have less to sell; deficit farmers have more to buy) but also of pastoralists. Many animals die or lose weight because of the lack of water and pasture. The price of animals usually goes down because i) they became thinner and ii) pastoralists sell more animals (as it is currently complicated and expensive to feed them) thereby increasing the animal supply on the market. From farmers and pastoralists (the first categories hit), the food crisis may widespread to their employees (e.g. agricultural workers) and clients.

When *staple prices* surge, other categories are hit by the crisis (e.g. urban consumers), as all grain sellers are affected. Staple prices may surge within a country because of i) bad harvests in the country or the region, ii) spikes in international prices and/or iii) decrease in the country exchange rate (that increases the price cost of imports from the international or regional market). In all cases, the effect is not automatic: the reduction in availability of staples provoked by bad harvests may be compensated by trade or stocks and the increase in import price cost may be more or less transmitted within the country. In West Africa, the main sources of sharp increase in the price of staples are i) droughts (and to some extent locust attacks) which affect the harvests of the main grain produced in the Sahel region (millet, sorghum) and ii) spikes in the international price of rice (as occurred in 2008).

When the harvest of millet and sorghum is bad in a given country, the resulting deficit may be compensated by the *regional trade of millet and sorghum.* This is exactly what occurred in Niger in 2010: the deficit has been compensated by massive imports from northern Nigeria, allowing grain prices to remain stable in Niger. However, most of the time, droughts affect all Sahel countries at the same time (as happened in 2005 and 2012). In this case, there cannot be compensations of surpluses and deficit and the price of millet, sorghum and maize increase a lot in Sahel countries. To some extent, the *regional trade of maize can contribute to regulating grain prices in the Sahel* (contrary to millet and sorghum that are only produced in Sahel countries and in the northern regions of coastal countries, maize is also produced in coastal areas that are much less exposed to droughts). However, as observed during the 2012 crisis, maize imports from coastal countries are likely to stop only the raise in maize price, without being able to stabilize the price of millet and sorghum (see figure 7 below).

[13] The current food crisis in Borno State (in the north-east of Nigeria) is related to the "conflict between Boko Haram and the Nigerian Armed Forces" and the "very high staple food price due to the declining value of the Nigerian Naira (FEWSNET, 2016).

Fig 7. Dynamics of grain prices in Bamako, Mali



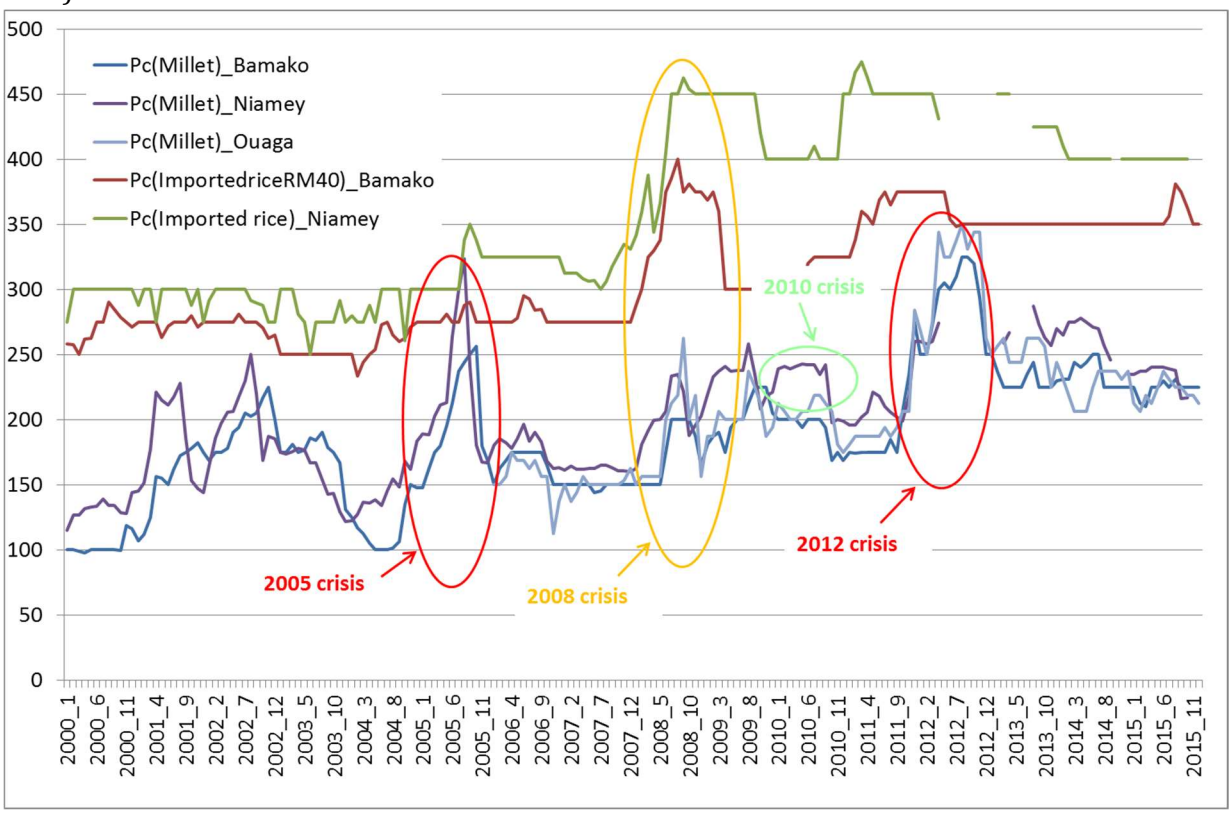
Source: OMA

Another regulating mechanism is provided by international trade (rice imports). As can be seen on figure 7 above, in 2005, the increase in the price of millet and sorghum was stopped when it almost reached the price of imported rice. The price of imported rice therefore plays the role of a ceiling for the price of coarse grains (millet, sorghum and maize). However, as rice is usually much more expensive than coarse grains, rice imports do not provide a mean to keep the prices of millet and sorghum at reasonable levels (in 2005, the prices of millet and sorghum increased by 150%!). Therefore, regional and international trade do not provide effective means to mitigate increases in the price of millet and sorghum in Sahel countries, except when bad harvests occurred in a single country. *Private stocks* would be another regulating mechanism. However, the level is usually low in the region (traders and farmers do have seasonal stocks but are reluctant to store for the next year, as it is a highly risky activity). The last regulating mechanism rests on public stocks but, as we have seen, their level is extremely low (usually less than 3 days of consumption).

When the price of rice surges on international markets, the price of imported rice increases in the region. That is what occurred in 2008: the transmission has been partial and delayed (David-Benz et al. 2010), partly thanks to import tax removals (Galtier et al. 2009), but at the end of the day the price of imported rice increased by 33% (the international price converted in FCFA increased by 100%). Maybe more important for food security issues, this increase in the price of imported rice generated an increase in the demand of coarse grain that pulled up their price (see figure 8 below). As all the countries of the region have been affected at the same time by this increase in the demand for coarse grain, regional trade has been unable to mitigate the increase in their price.

The resulting dynamics of grain prices in Sahel countries is shown on figure 8 below.

Fig. 8. Dynamics of grain prices in Bamako (Mali), Niamey (Niger) and Ouagadougou (Burkina Faso)



Sources: OMA for Bamako and GIEWS for Niamey and Ouagadougou

It therefore appears that when a scarcity of millet and sorghum occurs (provoked by a bad harvest at the regional scale or by an increase in the demand resulting from a sharp increase in the price of rice), the regional trade is not able to contain the surge in millet and sorghum prices. This gives some arguments in favor of PS made of millet and sorghum and located in Sahel countries or in the northern regions of coastal countries.

Consequences of collapses in livelihoods and increased staple prices. Both phenomena result in reducing the access to food to some categories of the population: farmers and pastoralists if the reduction in livelihoods is provoked by a drought and all grain buyers when grain prices increase. When the two phenomena play together, deficit grain farmers and pastoralists are hit twice as their livelihoods are reduced and the cost of the staples they need is higher: deficit farmers have to buy more grain at a higher price; pastoralists have less means to buy more expensive grains. The situation can be even worse as the two dynamics (reduction in livelihoods and increase in grain price) may interact and reinforce each other: when the price of grain goes up, pastoralists have to sell more animals to get the same quantity of grain, thereby increasing even more the animal supply, pushing down even more animal prices and finally reducing even more their livelihoods; reciprocally, when households become poorer, they demand for the cheapest sources of calories (grains) may increase, thereby pushing up even more the price of grains.

Household coping strategies. When facing a collapse in their livelihoods or a sharp increase in the price of staples, households develop coping strategies based on developing new activities to increase their income (work as agricultural worker in the first of richer farmers, migration to less

affected regions or countries or to the cities…), selling assets (with the risk of reducing their resilience to future crises) or adjusting their consumption pattern (with many potential consequences on nutrition if the quantity of calories or nutrients consumed is reduced or if the health of household members is affected). Note that the strategies based on migration or selling assets are less effective when the food crisis also affect the neighboring countries (as in this case it is more difficult to find job opportunities and the price of assets –such as animals- is likely to fall more).

A typology of food crisis in West Africa

We saw that the main shocks that provoked food crises in West Africa are droughts in the Sahel area and spikes in the international price of rice. We also saw that droughts usually affect the livelihoods of farmers and pastoralist and may generate a surged in the price of grain in Sahel countries (especially when the drought affect all the Sahel area, as in this case regional trade is ineffective in mitigating grain price increases). Finally we saw that spikes in the international price of rice affect all countries of West Africa and do not only result in increased prices for imported rice: because of consumer's substitutions, the price of coarse grains (millet, sorghum and maize) is likely to be pulled-up (as occurred in 2008).

Acknowledging these facts, we identified three food crisis scenarios for West Africa. In the first crisis scenario (CS1), the crisis stems from bad harvests of millet, sorghum and maize in a single (Sahel) country. Thanks to regional trade, grain prices are likely to remain stable. The crisis is therefore driven by the collapse in farmer and pastoralist livelihoods. This is the scenario of the 2010 crisis in Niger. In the second crisis scenario (CS2), the crisis stems from bad harvests of millet, sorghum and maize in the major part of their production area (Sahel countries and the northern regions of coastal countries). Coarse grain prices increase sharply (especially for millet and sorghum as the increase in the price of maize may be mitigated by maize imports from coastal regions). The crisis is therefore driven both by a strong reduction in farmer and pastoralist livelihoods and by an increase in grain prices. This is the most frequent scenario in the region (the last examples are the 2005 and 2012 crises in the Sahel). In the last crisis scenario (CS3), the crisis stems from a rice price spike on the international market. It affects all countries of West Africa. In this case, household livelihoods are not affected but the price of all grains increases (both rice and coarse grains). This is the scenario of the 2008 crisis. The effect of these different types of crisis on grain prices are illustrated on figure 8 above. Their main characteristics are summarized in table 10 below.

Table 10. Characteristics of the three main crisis scenarios

Crisis scenario Characteristics of the crisis	CS1	CS2	CS3
Shock that provoked the crisis	Bad harvests of millet and sorghum in a single (Sahel) country	Bad harvests of millet and sorghum in all the Sahel area	Sharp increase in the international price of rice
Drivers	Collapse in farmer and pastoralist livelihoods	Collapse in farmer and pastoralist livelihoods + Increase in grain prices	Increase in grain prices
Extension	One (Sahel) country	Sahel countries + northern regions of coastal countries	Sahel countries + coastal countries
Recent examples	Niger 2010 crisis	2005 and 2012 crises in the Sahel	2008 crisis

What may be the contribution of the RR Project to improving the management of these different types of crises? In order to answer this question, let us consider an example for each crisis scenario and try to imagine what may have changed if the RR Project had already been implemented when the crisis occurred. This is a rather speculative thought experiment but it can be useful to draw lessons on what can be expected from the RR project. We will consider successively the cases of Niger 2010 crisis, Niger 2005 crisis and the 2008 crisis in West Africa.

3.2. Potential benefits of the RR Project to managing a type 1-crisis (bad harvest in a single country)

In this section, we will analyze the potential role of the RR for managing a type 1-crisis. The analysis will be based on the experience of Niger 2010 crisis: we will first present the story of the crisis before trying to imagine what may have change if the RR project had been already implemented at that time.

The story of Niger 2010 crisis

The crisis was provoked by a drought that led both to a very bad grain harvest in Niger and to a lack of pasture and water for animals. It has been estimated that "more than 40% of villages had lost more than half of the main rainfed harvest" (Wiggins et al. 2012, p. 11) and that the deficit in pasture was equivalent to 67% of the needs (Michiels et al. 2011a). However, as the harvest was pretty good in the neighboring countries, the grain deficit was compensated through massive imports: it has been estimated that from February (therefore very early in the marketing year) "between half and two-thirds of food available on markets, particularly in the west of Niger, was imported" (p. 12). Maybe for that reason, grain prices remain stable (at a rather high level anyway, see figure 8 above). The main effects of the crisis have been a strong reduction in the livelihoods of farmers (decrease in harvests) and pastoralists (increased animal morbidity and mortality,

increased fodder prices and sharp reduction in the value of animals). Households coping strategies have been mainly based on worker migration (more and sooner than usual), in moving animals south (one month earlier than usual) and in adjusting food consumption (eating leaves, ant-food etc.).

The policy response has been massive (more than 200 billion FCFA according to Michiels et al. 2011b) and diversified (Michiels et al. 2012). It has been based on food transfers (free distributions, sales at a subsidized price, food for work), cash transfers (including cash for work), input transfers (seeds, inputs for animals) and measures for the nutritional recovery of young children and women. In monetary terms, the main component of the policy response has been related to nutritional measures: more than 580,000 children and about 60,000 women have been treated in recovery centers, whereas a blanket feeding has been distributed to 678,000 children (nutritional measures accounted for more than 60% of the 200 billion FCFA used to manage the crisis). Regarding the other components (transfers), the amount of food transferred (grains and beans) has been estimated to 260,000 tons whereas the amount of other transfers (cash and inputs) was around 25 billion of FCFA (equivalent to 100,000 tons of millet at the then prevailing market price).

The great majority of the aid has been channeled through UN agencies: the national scheme has rapidly been short of means and the international aid has been managed by UN organization and NG0s, as required by their procedures[14].

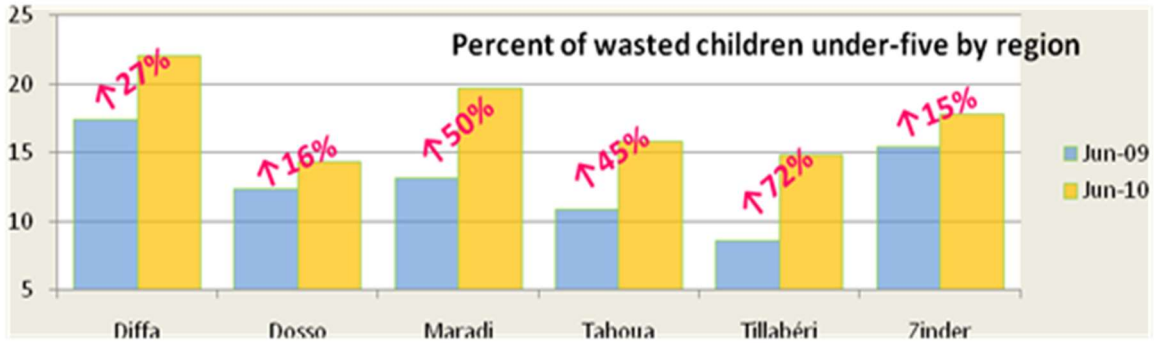
The general feeling of experts is that the policy response has been adequate both in its magnitude and in its modalities (diversity of actions implemented, acknowledging the fact the crisis was multi-dimensional)… but delayed. In spite of early warnings (it was obvious since October 2009 that the grain harvest was really bad in Niger and in December 2009, FEWS estimated that "about 20% of the population were likely to be severely food insecure and an additional 40% moderately food insecure in 2010"), emergency interventions have been low until early March (when they were scaled up) and then still too limited until May 2010 when they were scaled up again. The reasons for this delay are related to the political context: president Tandja (who at that time was in conflicts with the donors, following the constitutional change that allowed him to stay at power) was reluctant to recognize the magnitude of the crisis. It is only after the military coup of 18 February, that the new government appealed (on 10 March) for "massive support to the enormous efforts Niger is making to cope with famine". But the reasons of the delay in the policy response are also linked to the donors whose attention was diverted by the January 2010 earthquake in Haiti and floods in Pakistan[15].

This delay resulted in sharp increase in the percentage of wasted children in all regions of Niger (see figure 9 below), therefore requiring massive nutritional recovery programs.

[14] Anyway, it seems that the coordination of interventions between the government and external partners has been better than in 2005.

[15] "Some agencies were reported as transferring Francophone staff from West Africa following the January earthquake in Haiti." (Wiggins et al. 2012, p. 15).

Fig. 9. Children under-five wasting increased sharply during the Niger 2010 crisis



Source: Wiggins et al. (2012), p. 13

What may have been the effect of the RR Project?

Would have the RR Project already been implemented what may have changed in the way Niger 2010 crisis has been managed? The main problems were i) the too long response delays and ii) the lack of food sovereignty of Niger when massive international aid has been provided through UN organizations and international NGOs.

Had the RR Project already been implemented, the Niger government would have had in hands a much bigger PS[16]. It would not have had access to the RR anyway: following the change in the Niger constitution, Niger was temporarily excluded from ECOWAS bodies. It is only in February or March 2010 (after the coup d'état) that Niger government would have been able to ask for using the RR.

It seems quite realistic to assume that, with more means to manage it, the government would have been more willing to recognize sooner the intensity of the crisis: as we already mentioned it, president Tandja was in conflict with the donors at that time and therefore reluctant to recognize a crisis that could only be managed by international aid. Would have the Niger government recognized sooner the reality of the crisis, it may have shortened the delay in mobilizing international aid (it has been reported that "some international agencies were wary of contradicting the old government too strongly, fearing lack of cooperation, or even expulsion – for which there were precedents", Wiggins et al. 2012, p. 15). Therefore, have more stocks would not have only provided more means to the government to manage the crisis during the delays in mobilizing food aid (what is the explicit objective of the RR project): it may also have reduced this delay.

Acting sooner may have modified the nature of interventions as it may have reduced the needs for programs focused the nutritional recovery of children (these programs accounted for more than 60% of the total cost of managing the crisis), thereby saving means to implement actions focused on increasing households livelihoods and resilience and improving medium-term food security.

[16] The required level for Niger PS in 2020 is more than 317,000 (see table A.1). In 2010, when the crisis occurred, the theoretical level of PS were 80,000 tons for the physical stock (SNS) and the equivalent of 30,000 tons for the financial stock (FSA), whereas their actual level were respectively 21,000 tons and the equivalent of 11,000 tons (Michiels et al. 2011b, pp. 45-46).

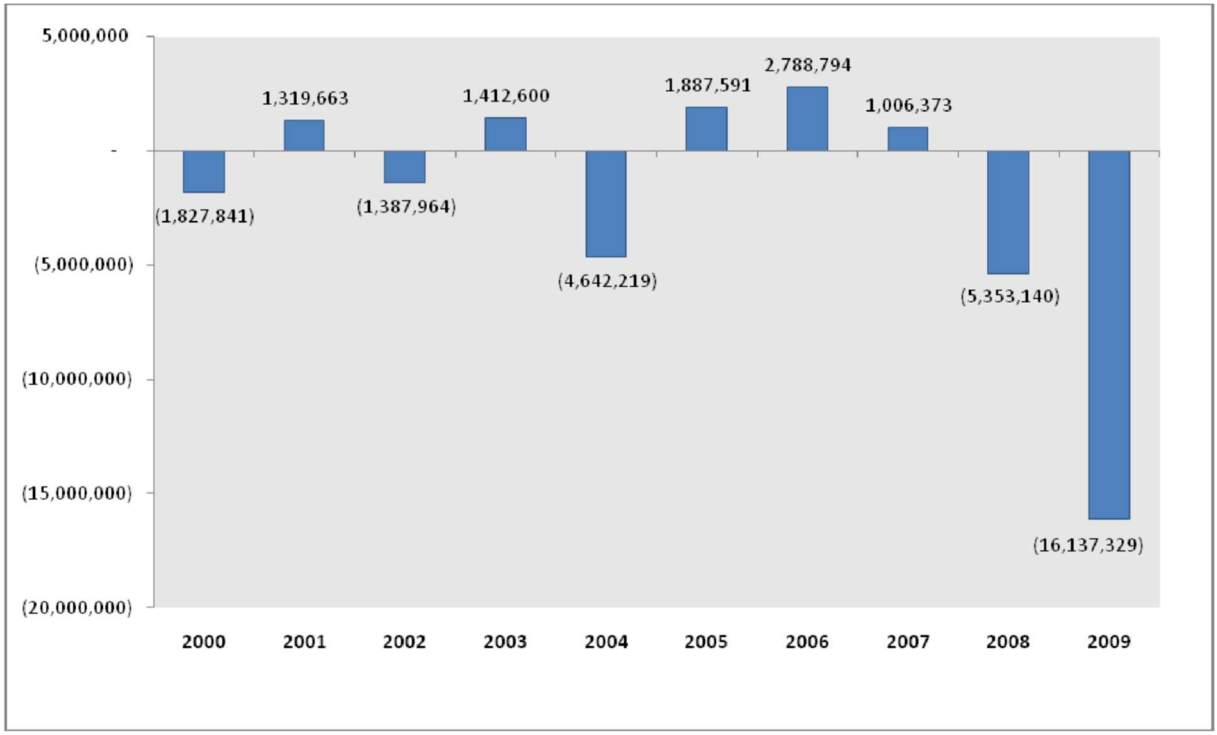
3.3. Potential benefit of the RR to managing a type 2-crisis (bad harvest in all Sahel area)

In West Africa, this type of crisis is the most frequent one and probably the one which has the most damaging effect in terms of food security. Those who designed the RR Project probably had this scenario in mind. The most recent crises of this type are the 2005 and 2012 crisis that hit all Sahel countries and the northern regions of coastal countries. To analyze the potential effect of the RR Project on this type of crisis, we will take the example of Niger 2005 crisis which offer the advantage to be directly comparable with Niger 2010 crisis[17].

The story of Niger 2005 crisis

The 2005 crisis was also provoked by a drought. Although the magnitude of the shocks were lower than in 2010 (the grain production fell by 12% compared to 31% in 2010[18] and the pasture deficit was much lower, see figure 10 below), the consequences on food security have probably been worse. The main reason for this is the regional dimension of the crisis. Usually grain deficit in Niger (which are chronic but increases the years of bad harvest) are compensated by massive imports from northern Nigeria. However, in 2005, the grain harvest has also been really bad in Nigeria: grain prices were higher in northern Nigeria than in Niger, leading to a reversal of the usual side of trade. In addition, Mali and Burkina Faso closed their border with Niger. As a result, contrary to 2010 and in spite of the fact that the grain deficit in Niger was much lower, a boom in grain prices occurred in 2005 (see figure 8 above).

Fig. 10. Dynamics of the pasture balance in Niger (in tons of equivalent dry matter)



Source : Ministère du développement agricole (cited by Michiels et al. 2011b, p. 31)

[17] Another advantage is that this crisis has been analyzed very carefully: see for instance Egg et al. (2006); Michiels et al. (2007) and Olivier de Sardan J.-P. (2007).
[18] Wiggins et al. (2012), p. 4 and Michiels et al. (2011b) p. 30

The sharp increase in grain prices resulted in more people being affected by the crisis (for instance urban consumers) and in deficit farmers and pastoralist being affected both by the reduction in their livelihoods and by the increase in the cost of grains. As in 2010, affected actors developed coping strategies (migration of workers, moving animals south, eat leaves or ant-food, reduce household non-food expenditure etc.) that proved to be insufficient to avoid surge in malnutrition rates[19].

As in 2010 (and even more), the policy response was delayed in 2005 in part for the same reason as we will see. The main difference with 2010 is that in 2005 early warning has been deficient: although it has been correctly estimated since October 2004 that the production deficit will be around 500,000 to 600,000 tons (compared to the normal deficit of 200,000 to 300,000 tons), the common belief was that, as usual, this deficit will be compensated by grain imports from Northern Nigeria. In addition, prior to the December elections, the government was reluctant to appeal for huge international aid. The initial emergency plan of the Niger government was therefore limited both in its size (67,000 tons of grain) and its modalities (sales at a subsidized price instead of free distribution). Given the small size of the Stock National de Sécurité (23,000 tons), the Niger government requested (unsuccessfully) 78,100 tons from the WFP. The WFP did not answer positively partly because it shared the view that there will not be major problems (its own interventions were very low-scaled: from February to August the WFP planned to transfer 6,562 tons of grain) but also because its attention was diverted by the tsunami in South-East Asia. Interventions were also delayed by the lack of grain: from the planned 67,000 tons of sales at subsidized price, only 25,000 tons have been actually sold. The perceptions on the intensity of the crisis began to change with the increase in grain prices (accelerated since February and even more since July) and even more (in May 2005) with data (disseminated by MSF) showing extremely high malnutrition rates. The 28 May the prime minister appealed to massive international aid. But the response (of both the Niger government and the WFP) was delayed by the lack of grain. Getting grain on international market proved to be long and difficult: the 11,000 tons of sorghum purchased to India by the Niger government (in the second half of June) was supposed to arrive in the port of Cotonou (Benin) at the end of July and at that time the Niger government did not had the means to finance its transportation to Niger. At the same time the WFP was still missing grain. It is only in August and September that 81,500 tons of grain were distributed.

Given the evolution of grain prices, in-kind transfers would clearly have been the best option. However, implementing such kind of transfers proved to be difficult because of the lack of grains. At the beginning of the agricultural year, the level of Stock National de Sécurité (SNS) was 23,000 tons, much below its theoretical level of 50,000 tons. It also proved to be extremely difficult for the Niger authorities and the WFP to get grains on the national or regional market (lack of grain availability, lack of financial resources to pay almost twice the usual price, export bans implemented by neighboring countries). In June, Niger public stock (SNS) was exhausted due to the failure of its suppliers (private traders) to deliver the 30,000 tons they were supposed to deliver. At the same time, the WFP was living a quite similar situation, expecting the delayed delivery of the grain ordered to the Nigeria public stock agency. The WFP had therefore to convert its food for work programs on cash for work programs. Finally the Niger government ordered

[19] Workers migration and remittances were less effective strategies than in 2010 because northern Nigeria was also hit in 2005.

sorghum to India (11,000 then additional 12,500 tons) but, as already mentioned, it proved to be long and difficult.

Another characteristic of the 2005 crisis management is its destructuring effect on national institutions. The shift to generalized free distribution of food that occurred in July 2005 resulted in marginalizing the Niger institutions in charge of managing food crises. To some extent this is a 'mechanical' effect of the shift to free distribution as according to donors' procedures, they have to channel this kind of aid through the WFP or NGOs. But some funds that were initially targeted to Niger bodies were reoriented to the WFP to be used for free distribution. In addition, few or no formal collaboration were developed by humanitarian organization and Niger bodies in charge of food security (for instance, OCHA put in place an information system without developing any collaboration with the Niger early Warning System, see Egg et al. (2006) pp. 68-69).

What may have been the effect of the RR Project?

Contrary to the 2010 crisis, in 2005, the diagnostic of the crisis (early warning) has been deficient: the deficit has been correctly estimated but the effect of the (regional) crisis on regional trade (reversal of trade flows between Niger and Nigeria) has not been correctly anticipated. The regional diagnostic promoted by the RR Project (based on the *Cadre Harmonisé Bonifié*) would probably have allowed 'thinking regionally' and anticipating better the magnitude of the crisis in Niger.

Like in 2010, by putting more means in the hands of national governments, the RR Project may have incentivized the Niger government to recognize much earlier the magnitude of the crisis (as we already mentioned it, prior to December elections, the government was reluctant to appeal for huge international aid). The RR Project would therefore have been likely to reduce the response delay (not only the implementation of interventions but also the decision). Like in 2010, this may have allowed managing better the crisis before the arrival of international aid (donors were diverted by the tsunami in Southeast Asia). Above of all, even more than in 2010, it would have allowed reducing the delay in mobilizing international aid: in 2005, international aid has been mobilized by MSF and other NGOs against the opposition of the Niger government (in July 2005, the Niger government was still reluctant to the shift in the nature of interventions toward free distribution of food because it implied less means for the Niger government and more means for the WFP).

The RR Project may also have contributed to improving the adequacy of the response by allowing more distribution of millet and sorghum. As in 2005 (contrary to 2010), the availability of millet and sorghum on the regional market was highly reduced, food distributions have been made of grains imported on the international market (like rice) or replaced by cash transfers. Cash transfers may have contributed to exacerbating the surge in millet and sorghum prices. And distribution of rice are much less relevant in this context as distributions of millet and sorghum as they i) take more time (import timelines), ii) are more expensive, iii) do not fit with household preferences and habits (especially in Niger, it is less true for Mali and Burkina Faso) and, above all, iv) have much less downward effect on the prices of millet and sorghum (which are the grains most consumed by the poor). Implementing large distribution of millet and sorghum would have required having stocks and the RR project would have allowed this through the RR and the

planned increase in national PS. The need for more physical PS had been recognized by the Niger government after the crisis: it decided to increase the level of the SNS from 50,000 tons to 80,000 tons.

Like in 2010, acting sooner (and in this case by acting both on livelihoods and grain prices), may have reduced the need for costly nutritional recovery programs thereby saving money for action less targeting on emergency and more on increasing livelihoods and resilience.

The 2005 crisis also showed the need for a regionally-scaled response. Otherwise the food distributions in one country do not push down the domestic grain prices because they stimulate exports to neighboring countries. This kind of 'spill-over effects' may lead some countries to implement exports bans (as did Mali and Burkina Faso during the 2005 crisis). The regional approach developed by the RR Project is likely to reduce this kind of problems by increasing the response capacity of all countries (increase of national PS + RR), thereby stimulating simultaneous interventions in situations of type 2–crisis. Moreover, the existence a regional solidarity through concrete policies (increase in national PS funded by the region + RR) is likely to discourage export bans.

3.4. Potential effect of the RR to managing a type 3-crisis (sharp increase in international prices affecting all West-African countries)

The story of the 2008 crisis

The 2008 crisis has been provoked by the sharp increase the international price of rice that occurred in 2008. Contrary to Niger 2005 and 2010 crises, it has been managed mainly internally (by the governments) with very few international aid. All ECOWAS countries implemented more or less the same policies (Soulé et al. 2008): import tax removal, export bans, use of PS (for the countries that had PS) and development of input subsidies programs to stimulate the national grain production (GOANA in Senegal, 'Initiative Riz' in Mali, 'Initiative 3N' in Niger etc.).

Part of these measures were not legal and, more important, were not in line with regional solidarity. To mitigate the increase in the price of imported rice, almost all West African countries not only removed the VAT on rice but also the tariff on rice imports what, for the case of WAEMU countries was not legal (the level of the CET should theoretically be decided at the WAEMU level)[20]. More problematic, many countries banned their grain exports in order to reduce "leakages" through the neighboring countries. These measures were not legal for the case of WAEMU countries.

To what extent were these measures effective in containing the increase in grain prices? This question has been particularly studied for the case of Mali. *Export bans* have often been circumnavigated as the governments of the region are at a loss to control their borders (smuggling, corruption etc.). Therefore grains exports have not been stopped, but transaction costs increased, leading to exacerbating the increase in the price of grains in West Africa (Diarra and Dembélé 2008; Staatz et al. 2008). *PS sales or free distribution* involved too small quantities to

[20] At that time, the custom union was limited to WUEMU countries. It has been enlarged to all ECOWAS countries in January 2015.

have a significant effect on price (Galtier et al. 2009). *Input subsidies programs*, by nature, only can have a lagged effect. The extent to which the *import tax removals* were passed on by the importers in their selling price is still controversial, even when measures are taken for this purpose (contracts between the government and rice importers by which they commit themselves on a maximum selling price, monitoring system etc.). The main reason for being skeptical is that the rice import sector is highly concentrated (2 or 3 big importers in each country). However, it seems that in some occasion, when properly managed, import tax removals led to reductions in the price of imported rice (Galtier et al. 2009). As a matter of fact, being for the policies implemented or other reasons, the increase in the price of imported rice as been around + 33% in WAEMU countries whereas the international price converted in FCFA increased by 100%. The price of coarse grain (millet, sorghum, maize) usually increased in the same proportion because part of consumers' substitutions.

Another issue related to import tax removal is countries' ability to remove taxes on rice imports for a long time as these taxes account for a significant share of their budget (Soulé et al., 2008).

What may have been the effect of the RR Project?

The RR is not suited to deal with the direct effect of this type of crisis, as rice only accounts for 5% of the staples stored in the RR physical reserve. Moreover, the price of rice in ECOWAS countries is strongly determined by the import price cost therefore difficult to influence by using PS.

However, as we have seen before, in 2008, the increase in the price of imported rice pulled up the price of local staples (millet, sorghum, maize, gari etc.). The increase in their price has been further increased by export bans. By providing to the governments the means to implement in-kind transfers made of these staples, the RR may have usefully contributed in mitigating the increase in the price of local staples (and in discouraging export bans).

3.5. Conclusion on the adequacy of the RR Project to the dynamics of food crises in West Africa

The review of past experiences of West-Africa countries in managing food crises led us to highlight the relevance of the RR Project:

- *The focus on food crises* seems to be justified: food crisis are frequent in West Africa, particularly in Sahel countries (during the last two decades, a food crisis occurred on average every 3 years) and very damaging for food security (although high levels of chronic malnutrition do also exist).

- *The focus on managing the delays in mobilizing international aid* sounds relevant as well: during the Niger 2005 and 2010 crises, the attention of the international community was diverted by other crises (the tsunami in Southeast Asia 2005; the earthquake in Haiti in 2010) and interventions were delayed a lot (less in 2010 than in 2005), leading to huge nutrition problems, especially for young children. Being able to act sooner is likely to reduce malnutrition problems, thereby reducing the need for costly nutritional recovery programs (as those implemented in Niger in 2005 and 2010).

- *The focus on food sovereignty* (depending less on international aid) also make sense: the emergency aid provided by international organizations and NGOs during the Niger 2005 crisis was very effective but it proved to be very destructuring for national institutions. This kind of problem led government to be reluctant to recognize food crises (as illustrated by Niger 2005 and 2010 crises), thereby increasing the delays for both national and international responses[21]. The approach of food sovereignty developed in the RR Project is also realistic as it acknowledges the fact that the region alone is not able to manage the food crises that occur in West Africa (at least the most severe ones).

- *The focus on solidarity* between ECOWAS states also makes sense: some countries banned their exports during the 2005 and 2008 crises. Moreover, focusing the regional solidarity on Sahel countries (especially Niger) seems also to be relevant as these countries (Burkina Faso, Mali, Niger) are much more affected than the others by malnutrition and food crises.

- *The focus on stocks* (increase in national PS, RR, cooperation between national PS through RESOGEST) also seems to be relevant: in 2005 and in 2008 more physical stocks of local staples would have allowed providing more in-kind transfers, thereby mitigating the increase in staple prices. Note that the composition off the physical component of the RR seems adequate as it is mainly made of local staples (especially millet and sorghum, and to some extent maize and gari, see section 2.2).

- *The regional approach.* Niger 2005 crisis showed the need to 'think regional': neglecting the fact that northern Nigeria was also affected by the crisis (therefore less able to compensate Niger's deficit) led to underestimate the gravity of the situation in Niger. The RR Project, by using the *Cadre Harmonisé Bonifié* spontaneously lead to 'think regional'. By increasing the means of ECOWAS country governments (increased national PS, right to use the RR), the RR Project is also likely to stimulate many simultaneous national responses when several countries are affected by a crisis, thereby helping to produce 'regional responses' to 'regional crises'.

4. CONCLUSION

RR project lays in-between national policies and external aid (to complement them not substitute them). It is worth therefore questioning what could be its value added vis-à-vis international aid and vis-à-vis national policies, both in terms of its political objectives (enhancing country food sovereignty; developing the solidarity between ECOWAS Member countries) and in terms of food security.

[21] For the same reason, it appears that the choice of the RR Project to support national governments by providing them additional means (increase in national PS, right to use the RR) instead of promoting interventions decided at ECOWAS level (principle of subsidiarity) is therefore relevant.

4.1. Potential value added by the RR project *vis-à-vis* international aid

Potential effects on food sovereignty

It is not our role to discuss the relevance of this objective but we can remark that it is grounded in past negative experiences, for instance the management of the 2005 Niger crisis by UN organizations and international NGOs which, although very effective in saving lives, had a very destructuring effect on the Niger national scheme to manage food crises (and more broadly on national institutions).

The RR Project has realistic (therefore limited) ambitions in this area, as it only seeks to increase the means in the hands of Member States governments in order to allow them managing the food crisis during the delay necessary for mobilizing international aid. Moreover, the RR project itself will be partly funded by donors, although the majority of its resources should stem from the region. Note that the subsidiarity principle not only applies with the international community but also with ECOWAS bodies: the RR Project fully respects the Member States sovereignty as it aims increasing national PS and providing government with a right to use the RR until a certain level (country quota) and under the condition that the country is experiencing a food crisis (the diagnostic being based on the *Cadre Harmonisé Bonfié*).

Potential benefits. Its main potential benefits are the following:

- Governments are likely to be more involved in managing food crisis before the arrival of international aid, thereby increasing their abilities in this area (this is the explicit objective of the RR project).
- Governments are likely to have more weight in co-managing the international aid, especially when there is a scarcity of local staples and when the government holds (physical) stocks. The 2005 crisis showed that WFP and other partners were interested in cooperating with the Niger government in order to get grains to distribute (although at that time the conflicting relationships between Niger governments and donors, especially the WFP impeded this potential cooperation to be effective)
- The share of local staples in the aid provided is likely to be higher thanks to the RR Project: the RR is mainly made by local staples (millet accounts for 25%, sorghum for 24%, maize for 26% and gari for 14%) and the donors always have interest to use stocks of local staples when available in order to reduce the delays and the costs of their operations – local staples are less expensive than rice and other grains imported from the international market). Therefore the aid provided is likely to fit better with consumers' preferences and habits.
- Local procurements of the RR are a way to support local production, all the more that the rule specify that local purchases should be preferred when possible (and that part of the procurement should be made directly with producer organizations).

Challenges. However, all these potential benefits require the involvement of ECOWAS and Member States in the funding of the RR Project. However, until now, the only contributor to the building of the RR Project is the European Union: the Member Stated did not deliver the quantity of staples they were supposed to deliver to build the RR; the regional economic communities (ECOWAS and WAEMU) did not provided the money they were supposed to provide for the building of the RR; the Zero Hunger tax as not been created what compromises the planned increase in national PS and the ability of Member States to use the RR.

Potential effect on food security

By allowing the governments of ECOWAS countries to complement better international aid when a crisis occurs, the RR Project is likely to reduce the response delays and to improve the response adequacy.

Reducing the (national and international) response delays. The RR Project seeks to improve food security by providing governments with the means to manage food crisis during the time necessary for mobilizing international aid. This approach seems relevant considering the delays in mobilizing food aid during past crises (especially Niger 2005 and 2010 crises). The resources providing by the RR Project (increased national PS, RR) are adequate to implement interventions very quickly, contrary to international aid or policies based on imports. Theoretically, these resources are sized to allow all ECOWAS countries to manage the delays in mobilizing food aid (in the situation where all countries would be hit at the same time).

Note that, during Niger 2005 and 2010 crises, the delays mobilizing international aid were not only due to the fact that the internal community was occupied by other events in other part of the World (the tsunamis in Southeast Asia in 2005, the earthquake in Haiti and floods in Pakistan in 2010): the fact that governments were reluctant to recognize the crisis also played a very important role. It appears that governments were reluctant to recognize the crisis because they did not have the means to manage them and because they know they will not be associated to the management of international aid. It seems therefore reasonable to assume that with a major role to play both before and after the arrival of international aid (see the previous section on food sovereignty), the government would be more willing to recognize food crises. *This is likely to reduce the delays in mobilizing international aid* as shown by the experience of Niger 2005 and 2010 crises where the lack of recognition of the crisis by the government resulted in longer delay for mobilizing international aid.

This is also likely to reduce the delays in *implementing* internal aid. During the 2005 crisis, interventions based on international aid were delayed because of the lack of availability of grains to be bought on the regional market.

Providing a more adequate response. The RR Project is also likely to allow a more adequate response. By allowing acting sooner when a crisis occur, the RR Project is likely to reduce the needs for costly nutritional recovery programs (they accounted for more than 60% of the budget for managing the Niger 2010 crisis). This may provide resources for other type of actions less focused on emergency and more on medium-run food security (increase in household livelihoods and resilience, public services…).

By building physical stocks mainly made of local staples (increase national PS + the physical component of the RR), the RR project allows more use of local staples in interventions (both interventions managed by the government and the WFP or NGOs). This is likely to contribute to food security through different ways as it may i) contribute to mitigating the increase in the price of the grains most consumed by the poor, ii) reduce the delays, iii) reduce the cost as local staples are less expensive than imported grains (with the same budget, you can usually provide a quantity higher by 70%) and iv) better meet consumers habits and preferences (which is part of the definition of food sovereignty but also of food security).

Challenges. There is a risk anyway that the internal community may be less involved. In 2005 and 2010, the international community has been mobilized because of evidences showing a strong increase in young children malnutrition rates. If the RR Project, by allowing a sooner and more adequate response, leads to reducing malnutrition rates, it may result in *increasing* the delays in mobilizing international aid and in *reducing* its magnitude. The solution to this problem would be mobilizing the international community by using the early and comprehensive indicators of food insecurity based on the *Cadre Harmonisé Bonifié*, instead of malnutrition rates. This implies generalizing the (proper) use of the *Cadre Harmonisé Bonifié* by all ECOWAS countries.

4.2. Potential value added by the RR project *vis-à-vis* national policies

Potential effect on the solidarity between ECOWAS Member countries

Solidarity. The RR Project encompasses three forms of solidarity:

- *solidarity with the countries hit by food crises* through the 'mutualization' of the RR: all countries country contribute; only countries in crisis benefit (the right to use the reserve –for free- in the name of regional solidarity being triggered by country food insecurity indicators based on the *Cadre Harmonisé Bonifié*). The existence of the RR is also likely to incentivize countries to renounce implementing export bans measures (as occurred in 2005 and 2008), all the more that, since January 2005, exports bans are illegal between ECOWAS countries.
- *solidarity with the countries vulnerable to food crises* through i) the increase in national PS (funded by regional solidarity) and ii) the size of country right to use the reserve in the name of regional solidarity (its quota), as both of them both depend on: the percentage of population hit during the main shock recorded since 2000 and the delay in mobilizing international food aid (1.5 months for coastal countries and 3 months for landlocked countries).
- *solidarity with poor and landlocked countries***,** as these countries have a higher percentage of their needs covered (40% for LDC and landlocked countries, 20% for LDC or landlocked countries, 10% for coastal non-LDC countries) and as the funding through the Zero Hunger tax on country extra-ECOWAS total imports, will result in non-LDC coastal countries (Côte d'Ivoire, Ghana and Nigeria) being the main contributors (77.5%) and Sahel countries the lowest contributors (5%), see figures 4 and 5 above .

The last two forms of solidarity will result in Sahel countries benefiting from 89.6% of the rights to use the reserve (the quotas) and 77.5% of the increase in national PS funded by the region, while contributing only for 5% of the costs (through the Zero Hunger tax). In addition, as Sahel countries are more often hit by food crisis, the fact that the RR can be used only by countries in crisis (first form of solidarity) means that Sahel countries will use their (higher) quotas more often. All these remarks are even truer for Niger who will alone receive 51.5% of the quotas and 46.5% of the increase in national PS funded by the reserve[22].

[22] Other forms of solidarity may emerge from the cooperation between national PS (the RESOGEST seeks to stimulate this kind of cooperation behaviors).

Tensions and challenges. Tensions between countries for the use of RR may emerge, especially when the food crisis affect many countries at the same time as is the case in crisis scenarios CS2 and CS3[23]. However, the rules of the RR have been designed to minimize these tensions. First, in theory, the size of the RR is enough to provide its quota to each country, meaning that even if all ECOWAS countries are hit at the same time, they don't have to compete to access to the free support of the RR (however, they may compete for getting monetary or grain loans from the RR). Second, the use of the RR is triggered by CHB indicators which in theory allow comparing the state of food insecurity in different countries. However, tensions may still emerge especially if the RR Project is not fully implemented (insufficient increase in national PS and/or RR undersized), as in this case the resources will not be enough to allow country government to manage the crisis before the arrival of international aid. Moreover, in the short run, difficulties may arise from the lack of reliable CHB data (some countries don't use it or don't use it properly, with only part of the required information being gathered). In order to avoid these difficulties, it is necessary i) to create the Zero Hunger tax in order to guarantee the full implementation of the RR Project (increase in national PS + RR) and ii) to generalize the (proper) use of the *Cadre Harmonisé Bonifié* within all ECOWAS countries.

Tensions may also occur regarding the funding of the RR Project. Because of the high level of solidarity in the RR Project, countries that are supposed to contribute a lot and likely to receive few may be reluctant to contribute to its funding. As the solidarity is likely to play almost always on the same side (from rich coastal countries to Sahel countries), the term 'mutualization' is rather misleading and it raises the question of the interest of rich coastal countries in supporting the RR Project. Maybe this interest can be found in coastal countries' experience that, in periods of food crisis in the Sahel, they are affected by massive migrations to the south of people and livestock, which generates tensions and conflicts[24]. Another potential reason is related to the political crises provoked by jihadists' movements at the border between Sahel countries and coastal countries (Boko Haram, Mujao, AQMI etc.). But this solidarity may also be driven by the feeling of peoples that they have a common destiny with neighboring countries' peoples[25], providing support to policy-makers when they go for solidarity.

Potential effect on food security

Increasing the means of national governments. An obvious effect value-added of the RR Project is that it increases the stocks in the hands of national government, allowing them to do more to manage food crises. The stocks of national governments are limited by their high cost and the lack of budget to fund them. The RR Project provides answers to these issues through:

- *Mutualization*: as countries are usually not hurt at the same time, pooling their means is supposed to be an effective way to manage crises. The RR (410,000 tons) is partly built on this idea and the RESOGEST as well. However, the most probable is that the countries

[23] And even more when coastal countries are hit (as in the crisis scenario CS3), as in this case they may be unwilling to accept that, although they contribute more, they have to receive less.
[24] Other spillover effects may occur such as grain price crises in the Sahel pulling-up grain prices (especially maize price) in coastal countries.
[25] They often have common history, culture and languages. During the last Ebola crisis, some countries of the region were proud to let their border open with the neighboring (affected) countries.

who will benefit from the reserve will often be the same: Sahel countries (and among them Niger)[26].

- *Solidarity*: both the increase in the level of national PS (+650,000 tons) and the free use of the RR will be covered by regional solidarity. This solidarity will mainly play in favor of the most affected countries (Niger, then the other Sahel countries).

Promoting the 'think regional' in early warning and diagnostic. Early warning is usually based on national indicators. But the Niger 2005 showed that misunderstanding the situation and the dynamics of the regional market led to strongly underestimating the Niger crisis. The RR, by using the *Cadre Harmonisé Bonifié* to compare the situation of various countries spontaneously will lead to promote the 'think regional' and is therefore likely to improve the diagnostic and early warning of food crises.

Promoting a 'regional response' to 'regional crisis'. When a crisis is regional and a large-scale increase of staple prices, when a PS provides in-kind transfers in a given country, the downward pressure on staple prices in its domestic market is limited because if the domestic price goes down, this is likely to increase exports to the neighboring countries. The solution to this problem is simultaneous interventions of national PS. Although the RR Project does not contemplate any kind of mechanism to coordinate the interventions of national PS[27], it may contribute indirectly to the simultaneous use of stock intervention by increasing the means of all ECOWAS country governments (increased national PS, right to use the RR).

These different potential benefits of the RR Project (and the related challenges) are summarized in table 11 below.

[26] Although countries may be hurt not only by climatic shocks (that affect mainly Sahel countries) but also, for instance, by shocks on international markets or political crises. For instance grain prices are currently high in Nigeria because of the low level of the Naira which itself stems from the low level of oil price on international markets.

[27] The RESOGEST is unlikely to play this role : it's a network of PS agencies but PS agencies do not design PS interventions, they only implement them.

Table 11. Potential benefits and challenges of the RR project (by objective)

	Political objectives	Food security objectives
Vis-à-vis international aid	**Food sovereignty of ECOWAS Member States** <u>Potential benefits</u> • Governments more involved in managing food crisis before the arrival of international aid (thereby increasing their abilities) • More weight of governments in co-managing the international aid (especially when there is a scarcity of local staples and when the government holds stocks). • Higher share of local staples in the aid provided (which therefore fits better with consumers' preferences and habits). • Local procurements of the RR as a way to support local production <u>Challenges</u> The potential benefits will not be reached if Members States and RECs (ECOWAS and WAEMU) do not contribute to the building of the RR and if the Zero Hunger tax is not created (what would compromise the use of the reserve and the increase in national PS). For now, the only contributor who complied with its commitments is the EU.	**Improving FS by complementing international aid** <u>Potential benefits</u> ***Reducing the (national and international) response delays:*** • National response possible while mobilizing international aid • Governments more likely to recognize the magnitude of the crisis if they have some means to manage it, thereby reducing the delays in mobilizing international aid • The availability of physical stocks (increased national PS + RR) may allow reducing the delays for implementing international aid (especially when there is a scarcity of grains on the regional market, as in 2005 and 2012). ***Providing a more adequate answer:*** • Acting sooner may reduce the needs for costly nutritional recovery programs (more 60% of the budget for managing the Niger 2010 crisis), thereby saving means for more medium-term action focused on households livelihoods and resilience • The availability of physical stocks may allow more use of local staples in (national and international) interventions, what may contribute in reducing the cost and delays of interventions and in mitigating the increase in the price of these staples (which are the most consumed by the poor) <u>Challenges</u> Risk of the international community being less involved (as their involvement has often been triggered by huge malnutrition rates.

Vis-à-vis national policies	**Solidarity between ECOWAS member States** Potential benefits *Solidarity with countries hit by food crises:* • the right to use the RR is triggered by food security indicators (based on the *Cadre Harmonisé*). • the existence of the RR is likely to incentivize countries to renounce implementing export bans. *Solidarity with countries vulnerable to food crises,* as countries strongly affected by past crises and landlocked: • will have a higher quota (right to use the RR for free, in the name of regional solidarity) • will receive a higher support from the regional solidarity to increase the level of their PS *Solidarity with landlocked and poor countries:* • will have a higher quota as a higher % of their needs is covered • will contribute very few as country contribution will be based on country value of extra ECOWAS imports (Zero Hunger tax) The resulting effect is Sahel countries will concentrate 89.6% of the quotas and 77.5% of the increase in national PS funded by regional solidarity. Challenges • Tension may occur between countries for the use of the RR. They can be limited by fully implementing the RR Project (building a 400,000 tons RR + increasing national PS by 650,000 tons) and if the (proper) use of the *Cadre Harmonisé Bonifié* is generalized among ECOWAS countries. • Tensions may occur for the funding, as the countries supposed to contribute a lot and receive few may be reluctant to contribute.	**Improving FS by complementing national policies** Potential benefits ***Increasing the means of national governments*** through: • Mutualization: a common tool (the RR) and cooperation between PS agencies (RESOGEST) • Solidarity: the increase in the level of national PS (+650,000 tons) and the free use of the RR will be covered by regional solidarity. **Promoting the 'think regional' in early warning and diagnostic:** • The use of the *Cadre Harmonisé Bonifié* to compare the situation of various countries will lead to take into account the regional dimension if crisis, thereby improving the diagnostic and early warning of food crises (the misunderstanding of the situation and dynamics of the regional market led to strongly underestimating the Niger 2005crisis). **Promoting a 'regional response' to 'regional crisis':** • By increasing the means of all ECOWAS country governments, the RR Project may lead to the simultaneous use of national PS intervention, thereby contributing to mitigating much more effectively surges of staple prices. Challenges These potential benefits will be lost if the RR project is not implemented or if its only partially implemented (national PS and RR undersized).

4.3. Perspectives

The next step is clearly implementing the RR project, what implies that i) Members States and RECs (ECOWAS and WAEMU) deliver their contribution to the building of the RR and ii) the Zero Hunger tax is created (what is a necessary condition to increase national PS and fund the use of the RR. If this is not the case, the coherence of the RR project would be completely lost, as well as its potential benefits on food sovereignty, solidarity between ECOWAS countries and food security. A partial implementation of the RR Project (with national PS and RR undersized) would not allow improving significantly food sovereignty and food security and is likely to exacerbate the tensions between countries to access the RR.

Another issue is related to the use of the *Cadre Harmonisé Unifié* (CHB) to estimate the level of country food insecurity. Although the CHB is the official tool of the region, it is not used by all ECOWAS countries. It is important to generalize and improve its use not only to allocate the RR but also to improve the diagnostic and early warning of food crises.

A further development of the RR Project may be rendering the rice CET flexible. We have seen that in 2008 many WAEMU countries removed unilaterally the rice CET to mitigate the increase in the price cost of imports. Why not rendering the CET flexible? It may increase or decrease (even becoming negative if needed) depending on international prices or ECOWAS countries food security situation. This is an idea (not even a project for now) which circulated in West Africa. A study on this topic has been commissioned by ECOWAS to IFPRI. As the 2008 experience showed that countries have difficulties to apply for a long time import tax removal (because of their weight in country budgetary resources), a solution may be to compensate the country loss in budgetary resources with the Zero Hunger tax. In periods of high grains prices it would make sense to remove taxes on grains and replace the by taxes on less important and less sensitive goods.

It also possible to imagine that in the future the RR may be used not only for managing crises but also to help poor households to recover their livelihoods when impoverished by a crisis. It is now well-known that there is a continuum between food crises and chronic malnutrition, especially in countries where food crises are very frequent (as Sahel countries). It has been reported that after a crisis households who had to deep into their savings and sell assets to cope with the crisis often to not have the time to recover when the next crisis arrives. Therefore, from a crisis to the next one they lose their capital and their resilience. By improving the management of food crises, the RR project may contribute to reduce this problem. If allowed to intervene also in post-crisis periods its contribution can be even higher.

The RR Project framework may be a source of inspiration for other regions of the world: SADC already showed interest in the idea and another experience of regional reserve is on-going in Asia (ASEAN+3 rice reserve). The RR project may even produce interesting lessons on how to manage price instability on international market: in 2008, many countries implemented export bans on rice (and to some extent on wheat), thereby exacerbated the surge in international prices (Headey 2011). Export bans were implemented at the same time by many West African countries (for local staples) and have been one of the main drivers for building the RR Project (in order to overcome

the observed 'lack of solidarity'). Therefore, if successful, the RR Project may well be a source of inspiration for international policies[28].

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6. ANNEXES

Table A.1. Calibration of the RR and the required increase in national PS

	Population in 2020 (000s)	Population Affected following Most Serious Crisis (%)	Annual Estimated Needs by 2020 (Tons)*	% of the needs that should be met regionaly	Needs that should be met regionaly	% of the needs met regionaly covered by the RR	Needs covered by the RR	Needs covered by national PS	Current level of national PS (SNS)	Required increase in national PS
Benin	11523	4%	82966	12,5%	10371	20%	2074	8297		8297
Burkina Faso	22150	18%	717660	25%	179415	40%	71766	107649	28000	79649
Cape Verde	544	7%	6482	25%	1621	20%	324	1296		1296
Côte d'Ivoire	24503	4%	176422	12,5%	22053	10%	2205	19847		19847
Gambia	2 242	36%	145282	12,5%	18160	20%	3632	14528		14528
Ghana	30325	4%	218340	12,5%	27293	10%	2729	24563		24563
Guinea	12765	4%	91908	12,5%	11489	20%	2298	9191		9191
Guinea-Bissau	1863	8%	25989	12,5%	3249	20%	650	2599		2599
Liberia	5166	13%	120884	12,5%	15111	20%	3022	12088		12088
Mali	20537	23%	850232	25%	212558	40%	85023	127535	17000	110535
Niger	22071	53%	2118286	25%	529572	40%	211829	317743	32000	285743
Nigeria	203869	4%	1467857	12,5%	183482	10%	18348	165134	150000	15134
Senegal	15998	7%	201575	12,5%	25197	20%	5039	20158		20158
Sierra Leone	7178	4%	51682	12,5%	6460	20%	1292	5168		5168
Togo	7343	4%	52870	12,5%	6609	20%	1322	5287		5287
ECOWAS	388,077		6328433		1252637		411554	841083	227000	614083

(*) Estimate based on the WFP norm: 15kg per person per month

Source: our calculus based on ECOWAS (2012): table 3 p. 38 for annual needs; note 18 p. 39 for the list of coastal countries and landlocked countries (that determines the % of the needs that should be met regionally: 1.5 or 3 months); note 19 p. 40 for the lists of LDCs/non LDCs countries (that jointly with the coastal/landlocked criterion determines the % of the needs met regionally that should be covered by the RR).

Table A.2: Minimum proportion of different products in the RR (by storage site)

Products	RR Storage sites				Total
	Eastern	Central	West Atlantic	Gulf Atlantic	
	56%	*40%*	*2,30%*	*1,60%*	*100,00%*
Maize	15%	30%	10%	25%	21,03%
Millet-sorghum	50%	30%	40%		40,92%
Rice		10%	20%	50%	5,26%
Gari	10%	10%			9,60%
Enriched cereals	5%	5%			4,80%

Source: adapted from ECOWAS (2012)

Table A.3. Detailed costs of the RR (constitution + maintenance)

	Unit	Market Price	Transport costs	Acquisition Cost	Trader Margin	Unit Price in warehouse	Proportion of reserve (%)	2013	2014	2015	2016	2017	2018	2019	2020	Total
Size of the reverve (thousands of tons) - Scenario 2																
Regional reserve								176	176	176	176	294	294	294	412	
Financial reserve								116	116	116	116	194	194	194	272	
Physical reserve								60	60	60	60	100	100	100	140	
Costs of the Physical reserve (thousands of dollars)																
Stocking costs								27 452				18 301			18 301	64 054
Millet	tons	288	50	338	24	361	25%	5 419				3 613			3 613	12 645
Sorghum	tons	260	50	310	22	332	24%	4 780				3 187			3 187	11 154
Maize	tons	278	50	328	23	351	26%	5 473				3 648			3 648	12 770
Rice	tons	632	50	682	48	730	7%	3 065				2 043			2 043	7 151
Gari	tons	366	50	416	29	445	14%	3 739				2 493			2 493	8 724
Enriched flour	tons	1500	50	1550	109	1659	5%	4 976				3 317			3 317	11 610
Cost of warehouse rental	tons					12		733	733	733	733	1 221	1 221	1 221	1 709	8 303
Cost of maintenance of stock (security, fumigation, etc.)	tons					29		1 735	1 735	1 735	1 735	2 892	2 892	2 892	4 048	19 664
Cost of management by the national operator						2%		549	549	549	549	915	915	915	1 281	6 222
Annual losses						2%		549	549	549	549	915	915	915	1 281	6 222
Costs of stock rotation																
Cost of stock depreciation	tons					10%			915		915		1 525		2 135	5 490
Costs of replenishment of stocks (intra annual price variation)	tons					9%			824		824		1 373		1 922	4 941
Total (I)								**31 017**	**5 304**	**3 566**	**5 304**	**24 244**	**8 841**	**5 943**	**30 678**	**114 897**
Costs of financial reserve (thousands of dollars)																
Costs of conversion into physical stock								53 247				35 498			35 498	124 243
Provison for price risk						15%		7 987				5 325			5 325	18 636
interests						3%		-	1 597	- 1 597	- 1 597	- 1 597	- 2 662	- 2 662	- 2 662	- 14 377
Total (II)								**61 234**	**- 1 597**	**- 1 597**	**- 1 597**	**39 225**	**- 2 662**	**- 2 662**	**38 160**	**128 503**
Costs of reserve governance and external institutional strenghtening																
Investments								90	0	0	0	0	70	0	0	160
Payroll								1282	1282	1282	1282	1282	1282	1282	1282	10 256
Operation								144	144	144	144	144	144	144	144	1 150
activities								661	661	661	661	661	661	661	661	5 292
- of which external institutional strenghtening								160	160	160	160	160	160	160	160	1 280
Control, certification and audit								104	104	104	104	104	104	104	104	835
Unforeseen expenses 5%								114	110	110	110	110	113	110	110	885
Total (III)								**2 556**	**2 461**	**2 461**	**2 461**	**2 461**	**2 535**	**2 461**	**2 461**	**19 857**
Grand Total (I+II+III) - Thousands of dollars								**94 807**	**6 168**	**4 429**	**6 168**	**65 930**	**8 713**	**5 742**	**71 299**	**263 257**

Source: RAAF / PASANAO (2015)

Table A.4. Anthropometric nutritional indicators (for selected countries)

Country	Year	Severe wasting of children < 5 (in %)	Wasting of children < 5 (in %)	Stunting of children < 5 (in %)
Sub-Saharan Africa countries				
BENIN	2014	**0.9**	**4.5**	**34**
BURKINA FASO	2012	**1.8**	**10.9**	**32.9**
BURUNDI	2010	**1.4**	**6.1**	**57.5**
CHAD	2010	**5.9**	**15.7**	**38.7**
COTE D'IVOIRE	2012	**1.8**	**7.6**	**29.6**
EQUATORIAL GUINEA	2010	**1.7**	**3.1**	**26.2**
ETHIOPIA	2014	**2.5**	**8.7**	**40.4**
GHANA	2014	**0.7**	**4.7**	**18.8**
GUINEA	2012	**4.1**	**9.9**	**31.3**
KENYA	2014	**0.9**	**4**	**26**
LIBERIA	2013	**2**	**5.6**	**32.1**
MALAWI	2014	**1.1**	**3.8**	**42.4**
MALI	2006	**6**	**15.3**	**38.5**
MOZAMBIQUE	2011	**2.3**	**6.1**	**43.1**
NIGER (THE)	2012	**6.9**	**18.7**	**43**
NIGERIA	2014	**2**	**7.9**	**32.9**
RWANDA	2015	**0.6**	**2.2**	**37.9**
SENEGAL	2014	**0.7**	**5.8**	**19.4**
SIERRA LEONE	2013	**4.3**	**9.4**	**37.9**
TANZANIA (THE)	2014	**0.9**	**3.8**	**34.7**
TOGO	2014	**1.5**	**6.7**	**27.5**
UGANDA	2012	**0.3**	**4.3**	**34.2**
ZAMBIA	2013	**2.5**	**6.3**	**40**
North Africa and Middle East countries				
ALGERIA	2012	**1.4**	**4.1**	**11.7**
LEBANON	2004	**2.9**	**6.6**	**16.5**
MOROCCO	2011	**1**	**2.3**	**14.9**
TUNISIA	2012	**1.7**	**2.8**	**10.1**
Asian countries (except Middle East)				
BANGLADESH	2014	**3.1**	**14.3**	**36.1**
CAMBODIA	2014	**2.3**	**9.6**	**32.4**
CHINA	2010	**0.7**	**2.3**	**9.4**
INDIA	2014	**4.6**	**15.1**	**38.7**
INDONESIA	2013	**6.7**	**13.5**	**36.4**
PAKISTAN	2012	**3.3**	**10.5**	**45**
PHILIPPINES (THE)	2013		**7.9**	**30.3**
SRI LANKA	2012	**3**	**21.4**	**14.7**
THAILAND	2012	**2.2**	**6.7**	**16.3**
VIET NAM	2013		**5.7**	**19.4**
Countries from Latin America and the Caribbean				
BOLIVIA	2012	**0.5**	**1.6**	**18.1**
COLOMBIA	2010	**0.2**	**0.9**	**12.7**
DOMINICAN REPUBLIC	2013	**0.8**	**2.4**	**7.1**
ECUADOR	2012	**0.7**	**2.3**	**25.2**

EL SALVADOR	2014	**0.4**	**2**	**14**
GUATEMALA	2009	**0.2**	**1.1**	**48**
HAITI	2012	**1.3**	**5.2**	**21.9**
HONDURAS	2012	**0.3**	**1.4**	**22.7**
MEXICO	2012	**0.4**	**1.6**	**13.6**
NICARAGUA	2006	**0.5**	**1.5**	**23**
PERU	2013	**0.1**	**0.4**	**17.5**
VENEZUELA	2009		**4.1**	**13.4**
OECD Countries				
GERMANY	2005	**0.1**	**1**	**1.3**
JAPAN	2010	**0.2**	**2.3**	**7.1**
UNITED STATES OF AMERICA (THE)	2012	**0**	**0.5**	**2.1**

Source: UNICEF-WHO-World Bank

For each country, the data provided correspond to the most recent data available in the UNICEF-WHO-World Bank database.

Severe Wasting: Percentage of children aged 0–59 months who are below minus three standard deviations from median weight-for-height of the WHO Child Growth Standards.

Wasting – Moderate and severe: Percentage of children aged 0–59 months who are below minus two standard deviations from median weight-for-height of the WHO Child Growth Standards.

Stunting – Moderate and severe: Percentage of children aged 0–59 months who are below minus two standard deviations from median height-for-age of the WHO Child Growth Standards.

Table A.5. Policies implemented by ECOWAS countries to manage the 2008 crisis

Etats et institutions d'Intégration régionale	Mesures prises	
	Mesures visant à atténuer les effets de la flambée des prix	**Mesures visant à relancer la production**
Bénin	Suspension des droits de douanes et de la TVA, collecte locale de produits vivriers, vente de stock tampon, distribution de produits alimentaires à des indigents, mise en place de boutiques témoins, subvention des carburants et de l'énergie, homologation et contrôle des prix ;	Elaboration d'un plan d'urgence, création d'une centrale d'achat des engrais, subvention des intrants, allocation de fonds de campagne, mise à disposition de matériels agricoles, aménagements sommaires de périmètres , promesse de collecte du riz et de maïs produits en urgence, mise en place d'un fonds de roulement
Burkina Faso	Suspension des droits de douanes et de la TVA, relèvement des salaires, subvention des carburants, vente de céréales à prix social, institution d'un système d'homologation et de contrôle des prix, instruction verbale d'interdiction des exportations de céréales, relèvement des tranches sociales d'eau à 8 m3 et d'électricité à 75 kwh,	Elaboration d'un plan d'urgence, subvention des intrants, distribution de semence et d'engrais.
Cap-Vert	Suspension des droits de douanes sur les produits de première nécessité, création d'une commission technique mixte de suivi de la crise, augmentation de la pension de solidarité aux groupes vulnérables, augmentation des capacités de stockage, sensibiliser les PTF sur la nécessité de renforcer leur assistance alimentaire,	Etudier la possibilité d'augmenter la production locale de céréales
Côte-d'Ivoire	Réduction de moitié de la TVA sur lait, huile de palme, tomate en conserve, sucre et ciment. Suspension de la taxe sur le développement de la culture du riz. Suspension de la TVA sur les intrants du ciment. Suspension des droits de douanes sur le lait, l'huile de palme, la tomate en conserve, le sucre, la farine de blé, le poisson, le riz et le ciment,	Mise en place d'un programme d'urgence de production du riz, subvention et distribution d'intrants,
Gambie	Suspension des droits de douanes et de la TVA sur le riz et le sucre,	Encouragement de la population à produire du riz, fourniture d'engrais et de semence,
Ghana	Suspension des droits de douanes et des taxes intérieurs sur un certain nombre de produits, constitution de stocks décentralisés de produits vivriers (maïs et riz) subvention de la production d'énergie électrique,	Initiation d'un programme d'urgence de production du riz et du maïs, subvention et distribution des intrants agricoles.
Guinée Bissau	Suspension de l'IGV sur le riz, le sucre et la farine de blé, distribution gratuite de riz, de farine de mil, d'huile alimentaire et de sucre, mise en circulation des transports publics urbains pour les fonctionnaires publics,	Mise à disposition de petits producteurs de petits matériels, d'intrants (engrais et semences) pour la production du riz,
Guinée	Suspension des taxes à l'importation, interdiction des exportations des produits vivriers, distribution gratuite de vivres (maïs et riz), intention de constitution d'un stock de sécurité de 25 000 tonnes de céréales, relèvement des bourses des étudiants, augmentation des primes de transport des fonctionnaires de l'ordre de 6 à 9 mille francs guinéens pour 20 jours ouvrés par mois, mise en circulation de bus pour le transport urbain et inter urbain	Programme d'urgence de relance de la production du riz, fourniture d'engrais et de semences, facilitation de l'accès aux crédits pour les producteurs,
Mali	Exonération des importations du riz de toutes les taxes y compris les prélèvements communautaires, interdiction d'exportation des céréales, vente à prix modéré de riz dans les magasins témoins lors du Ramadan ; mise en place de Banques de Céréales Villageoises, vivres contre formation, revalorisation des salaires et autres traitements,	Mise en place d'un ambitieux programme de production du riz, subvention des intrants (engrais et semences), fourniture de matériels agricoles (moto pompes),
Mauritanie	Suspension des droits de douanes, facilitation des importations de produits vivriers, subvention du pain, approvisionnement des centres de récupération et d'éducation nutritionnelles, distribution de vivres contre travail, augmentation de la capacité du stock national de sécurité en blé, accueil des mendiants, renforcement des stocks villageois de sécurité, augmentation des salaires des fonctionnaires, fixation du prix du blé	Fournitures d'engrais, de semences, de médicaments vétérinaires et des aliments de bétail,
Niger	Suspension des droits de douanes, et des prélèvements communautaires, cash for work, vente à prix modéré du riz et du sucre en période de ramadan, distribution gratuite ciblée, réhabilitation et protection nutritionnelle, restriction des exportations, contrôle des prix,	Distribution de semences, mise en place du programme spécial du Président de la République,
Nigeria	Suspension des droits de douanes et de la TVA sur le riz, constitution de stock de sécurité au niveau fédéral et des Etats fédéraux, importation en urgence de 150 000 tonnes de riz, interdiction d'exportation de céréales par les Etats fédéraux du Nord ;	Mise en place d'un programme de relance de la production des vivres, et surtout du riz,
Libéria	Suspension des taxes à l'importation, assistance alimentaire, food for work,	Mise en place d'un programme de renforcement de la production
Sierra Leone	Suspension des droits de douanes,	Dotation de tracteurs, fournitures d'intrants agricoles aux producteurs (semences, engrais et insecticides)
Sénégal	Suspension des taxes (droits de douanes et TVA) sur le riz importé, subvention des importations de riz, distribution gratuite de vivres aux indigents en milieu rural, distribution d'aliments de bétail, vente à prix modéré du riz dans les magasins de référence (easy boutiques), interdiction des exportations de riz importé, maintien de la subvention du gaz butane,	Lancement de la « Grande Offensive pour l'Agricole pour la Nourriture et l'Abondance », subvention des intrants, fourniture d'engrais et de semence aux communautés rurales ;
Togo	Subvention du prix des carburants et du gaz domestique, distribution de vivres, renforcement du stock de sécurité, gel du prix de nombreux produits, subvention de la production de l'énergie électrique,	Programme d'urgence de relance de la production agricole, fourniture d'intrants aux producteurs,
UEMOA	Aides budgétaires aux huit pays membres de l'Union.	Elaboration d'un programme d'urgence de relance de la production agricole, ouverture d'une ligne de crédit pour financer les programmes agricoles auprès de la BOAD,
CEDEAO	Concertation régionale (importateurs, banques régionales, Centre du Commerce International, CEDEAO) sur la possibilité de lancement d'une initiative régionale d'achat groupé du riz,	Adoption d'un programme d'urgence de production agricole ; dit : offensive Régionale pour la production alimentaire et contre la faim articulé autour de trois piliers, i) accroissement rapide et durable de la production, ii) structuration des filières et régulation des marchés, iii) garantie de la sécurité alimentaire et nutritionnelle. Ouverture d'une ligne de crédit à la BIDC pour financer les projets nationaux de relance de la production.

Source: Soulé et al. (2008)